# DOCUMENT RESUME

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ABSTRACT

The Alberta (Canada) Department of Education issues "Grade 12 Diploma Examinations" for various disciplines every six months (dated January and June of each year). Except for the English and Francais examinations (which are issued only in their own language), the examinations are issued in an English edition and a French edition. The eight disciplines represented in this compilation are as follows: Biology/Biologie 30; Chemistry/Chimie 30; English 30; English 33; Francais 30; Mathematics/Mathematiques 30; Physics/Physique 30; Social Studies/Etudes Sociales 30. The English tests have a "Part A": Written Response," in one booklet, and a "Part B: Reading (Multiple Choice)," in two booklets: "Readings Booklet" and "Questions Booklet." Before the cyclical pattern of publication was recognized, numerous previous generations of these tests were entered into the ERIC database (generally by the Reading-CS and Science-SE Clearinghouses). This compilation will be the last group entered (at least until future changes in the tests justify a new entry). Users interested in the latest editions of this series of tests are referred to the Alberta Department of Education. (AA)

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# GRADE 12
# DIPLOMA EXAMINATION

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

January 1990

Alberta
EDUCATION

TM014760

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# GRADE 12
# DIPLOMA EXAMINATION

## Biology 30

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# BIOLOGY 30

## DESCRIPTION

Time: 2½ hours

Total possible marks: 100

This is a **closed-book** examination consisting of **two** parts:

PART A has 70 multiple-choice questions each with a value of one mark.

PART B has seven written-response questions for a total of 30 marks.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

## GENERAL INSTRUCTIONS

Fill in the information required on the answer sheet and the examination booklet as directed by the examiner.

Carefully read the instructions for each part before proceeding.

**DO NOT FOLD EITHER THE ANSWER SHEET OR THE EXAMINATION BOOKLET.**

The presiding examiner will collect your answer sheet and examination booklet and send them to Alberta Education.

**JANUARY 1990**

# PART A

## INSTRUCTIONS

In this part of the examination, there are 70 multiple-choice questions each with a value of one mark.

Read each question carefully and decide which of the choices **best** completes the statement or answers the question. Locate that question number on the separate answer sheet provided and fill in the space that corresponds to your choice. **Use an HB pencil only.**

| **Example** | **Answer Sheet** |
|---|---|
| This diploma examination is for the subject area of | A B C D |
| **A.** Biology<br>**B.** Physics<br>**C.** Chemistry<br>**D.** Mathematics | ● ② ③ ④ |

If you wish to change an answer, erase your first mark completely.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

**DO NOT TURN THE PAGE TO START THE EXAMINATION UNTIL TOLD TO DO SO BY THE PRESIDING EXAMINER.**

1. The cell organelles of muscle tissue that contribute to an increase in body temperature are

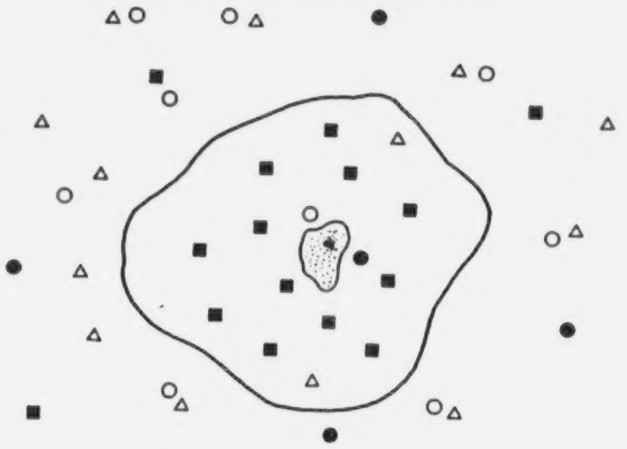
   **A.** lysosomes
   **B.** ribosomes
   **C.** mitochondria
   **D.** Golgi apparatuses

2. The part of the cell directly responsible for maintaining a relatively constant level of cellular solutes is the

   **A.** storage vacuole
   **B.** Golgi apparatus
   **C.** cell membrane
   **D.** mitochondrion

**Use the following information to answer question 3.**

A Diagram Showing the Distribution of Four Different Kinds of Molecules Inside and Outside a Cell



Note: Assume that the cell membrane is equally permeable to each kind of molecule.

3. Energy derived from ATP would be needed to move which kind of molecule into the cell?

   **A.** ○

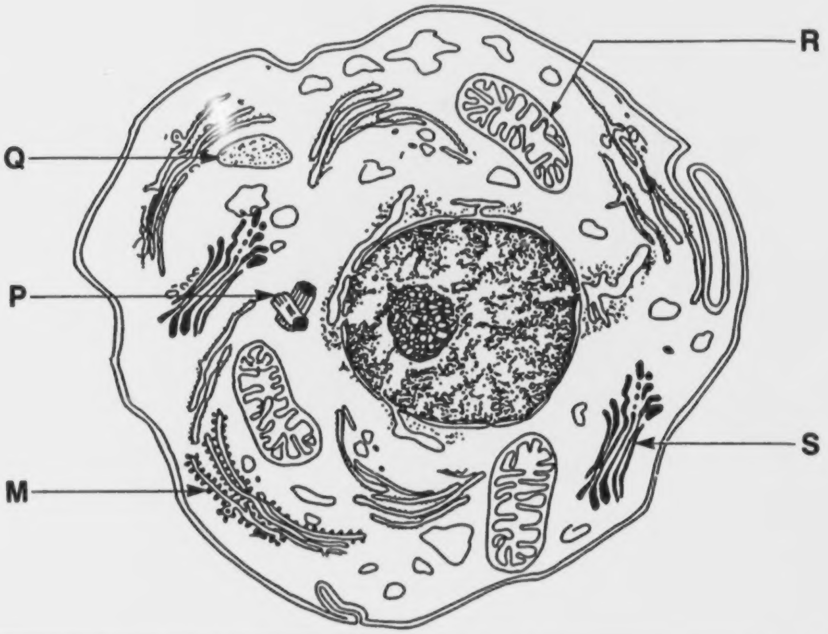
   **B.** ■

   **C.** △

   **D.** ●

**Use the following diagram to answer question 4.**

A Generalized Human Cell Showing Subcellular Organelles



4. Which labelled organelles would function in the synthesis and release of hormones for controlling blood sugar levels?

   **A.** M and P
   **B.** M and S
   **C.** Q and R
   **D.** Q and S

---

5. Boiling affects enzyme-controlled reactions by

   **A.** denaturing the enzyme
   **B.** increasing the rate of reaction
   **C.** increasing the energy of activation
   **D.** decreasing the energy of activation

6. The segment of the digestive system that first receives pancreatic enzymes and bile is the

   **A.** gallbladder
   **B.** duodenum
   **C.** pancreas
   **D.** liver

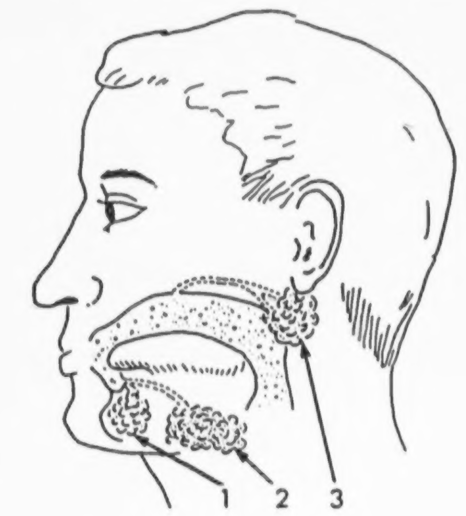
8

7. When egg white was tested for the presence of protein, a purple/pink mass formed. The indicator added to the egg white suspension was

**A.** iodine
**B.** Sudan IV
**C.** Biuret reagent
**D.** Benedict's reagent

**Use the following diagram to answer question 8.**

Mouth Section and Some Associated Structures



8. The smell of food stimulates the release of secretions from structures labelled 1, 2, and 3. This is an example of what type of control?

**A.** Mechanical
**B.** Voluntary
**C.** Hormonal
**D.** Nervous

9. In comparison to many other organisms, humans produce a wide variety of digestive enzymes. This variety of enzymes is probably related to the

**A.** diversity of foods humans consume
**B.** length of the human digestive tract
**C.** difficulty in digesting proteins and lipids
**D.** inability of digestive enzymes to be utilized over and over again

**Use the following information to answer questions 10 and 11.**

An individual with hepatitis has lost 95% of liver function. After eating a meal containing carbohydrates, proteins, and lipids, when sufficient time for digestion and absorption to occur had passed, the individual had a blood analysis done. In comparison with normal blood composition, glucose levels were three times higher, ammonia levels were above normal, and plasma protein levels were below normal.

**10.** The **best** explanation for the high glucose levels in the blood is that

**A.** body proteins and fats were being converted into glucose by the liver

**B.** blood glucose was not being converted into usable energy by the liver

**C.** glycogen stores from the liver were being released into the blood as glucose

**D.** glucose from carbohydrate digestion was not being converted into glycogen by the liver

**11.** Ammonia formed by bacteria in the large intestine and absorbed by the blood is normally removed by the liver. The absence of which liver function causes the buildup of ammonia in the blood of the hepatitis patient?

**A.** Decomposition of amino acids
**B.** Synthesis of blood proteins
**C.** Synthesis of urea
**D.** Secretion of bile

**Use the following information to answer question 12.**

| Two Characteristics of Four Digestive Enzymes | | | | |
|---|---|---|---|---|
| Characteristic | Enzyme | | | |
| | R | S | T | V |
| Optimum pH for enzyme function | 6-7 | 7-8 | 1-2 | 7-8 |
| Substrate acted upon by enzyme | starch | fats | proteins | maltose |

**12.** From which structures would enzymes R, S, T, and V respectively be secreted?

**A.** Small intestine, pancreas, stomach, and duodenum
**B.** Duodenum, pancreas, stomach, and salivary glands
**C.** Salivary glands, pancreas, stomach, and small intestine
**D.** Pancreas, stomach, small intestine, and salivary glands

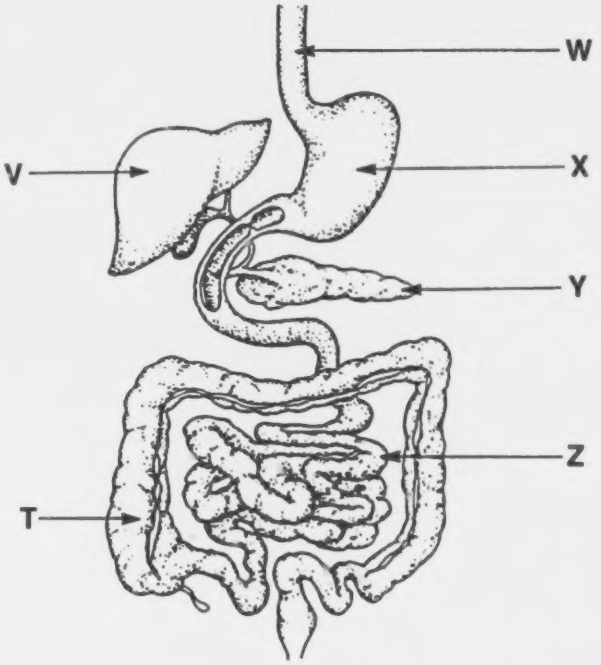
---

**13.** Muscle weakness may result from a lack of certain vitamins that are needed to

**A.** yield high-energy phosphate bonds
**B.** form coenzymes that are required for cell metabolism
**C.** control passive transport needed for energy production
**D.** contain high-energy phosphate bonds required for contraction

**Use the following diagram to answer question 14.**

The Human Digestive System

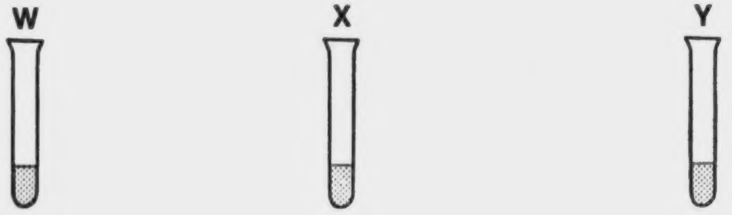


**14.** Which group of labels identifies three structures that undergo peristalsis?

**A.** T, V, and Z
**B.** T, W, and Z
**C.** V, W, and X
**D.** V, X, and Y

**Use the following information to answer questions 15 and 16.**

To investigate the digestion of an organic compound, test tubes W, X, and Y were set up with contents as shown. The pH of the contents of all three test tubes was neutral or adjusted to be neutral at the beginning of the experiment.



| W | X | Y |
|---|---|---|
| olive oil<br>distilled water<br>litmus | olive oil<br>distilled water<br>litmus<br>bile | olive oil<br>distilled water<br>litmus<br>bile<br>lipase |

Note: Litmus is blue in a neutral or basic solution and red in an acidic solution.

**15.** When test tubes W, X, and Y are compared, the contents of Test Tube X would most closely simulate (represent) the contents found in the small intestine of a person with

**A.** gallstones
**B.** a gastric ulcer
**C.** normal lipid digestion
**D.** a blocked pancreatic duct

**16.** After the test tubes and their contents were incubated at 37°C for one hour, it was observed that the contents of Test Tube Y turned red. What caused the pH to change?

**A.** Fatty acids
**B.** Lactic acid
**C.** Amino acids
**D.** Nucleic acids

**Use the following information to answer question 17.**

| Enzymatic Digestion of Starch | | |
|---|---|---|
| Test Tube | Contents (Incubated at 37°C for 20 min) | Indicator Added to Contents of Test Tube to Identify Reactants or Products |
| 1 | 0.1 g starch + 3 mL distilled $H_2O$ | Iodine |
| 2 | 0.1 g starch + 3 mL distilled $H_2O$ | Benedict's |
| 3 | 0.1 g starch + 3 mL amylase solution | Iodine |
| 4 | 0.1 g starch + 3 mL amylase solution | Benedict's |
| 5 | 0.1 g starch + 3 mL boiled amylase solution | Iodine |
| 6 | 0.1 g starch + 3 mL boiled amylase solution | Benedict's |

**17.** The controls of the experiment are test tubes

**A.** 1 and 2
**B.** 1 and 4
**C.** 3 and 4
**D.** 3 and 5

---

**18.** Which situation provides the **best** evidence to support the prediction that "secretion of enzymes from the pancreas is under hormonal control"?

**A.** The pancreas releases enzymes when food enters the small intestine of a dog.

**B.** If the nerves leading to the pancreas of a hungry dog are cut, no enzymes are released from the pancreas.

**C.** When the circulatory systems of two dogs are connected and food is placed in the intestine of one dog, the pancreas in each dog secretes enzymes.

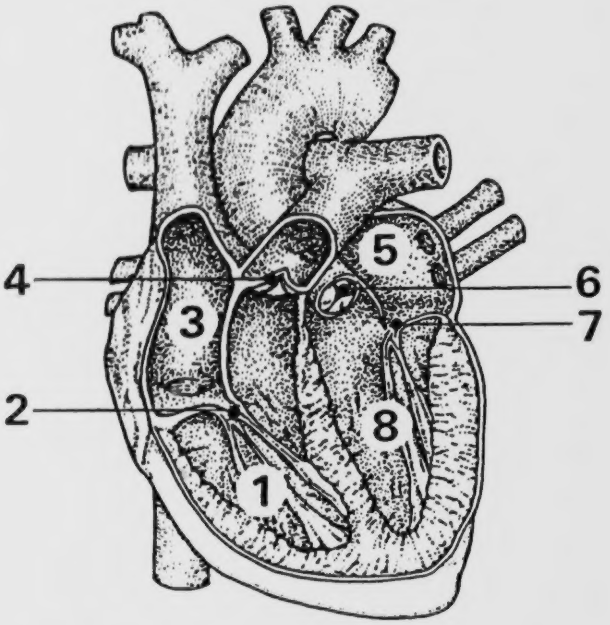
**D.** When blood from the intestine of a dog is prevented from reaching the pancreas and a nerve leading to the pancreas is stimulated, the pancreas secretes enzymes.

**19.** The pH of blood is kept relatively constant by

**A.** osmotic pressure
**B.** hormones
**C.** enzymes
**D.** buffers

**Use the following diagram to answer questions 20 and 21.**

A Cross-Section of a Human Heart



**20.** Which chamber of the heart receives blood from pulmonary circulation?

**A.** 1
**B.** 3
**C.** 5
**D.** 8

**21.** The first heart sound ("lub") is produced by the closing of valves labelled

**A.** 2 and 4
**B.** 2 and 7
**C.** 6 and 4
**D.** 6 and 7

**22.** Blood pressure would increase if the

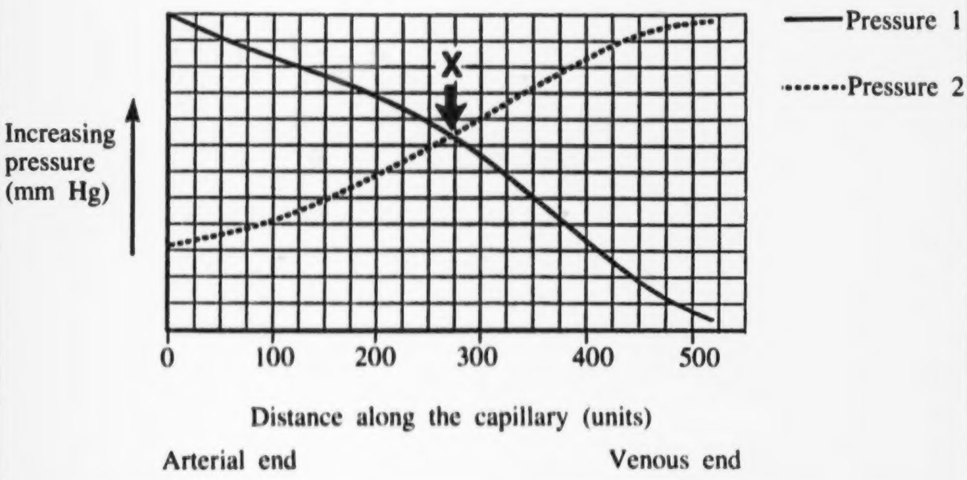
**A.** viscosity (thickness) of the blood decreased
**B.** diameter of the arterioles increased
**C.** blood volume increased
**D.** heart rate decreased

**23.** Two functions of the lymphatic system in an adult are

**A.** gas transport and fat absorption
**B.** fat absorption and disease control
**C.** red blood cell production and gas transport
**D.** red blood cell production and disease control

**Use the following graph to answer question 24.**

Changes in Blood and Osmotic Pressures within a Capillary

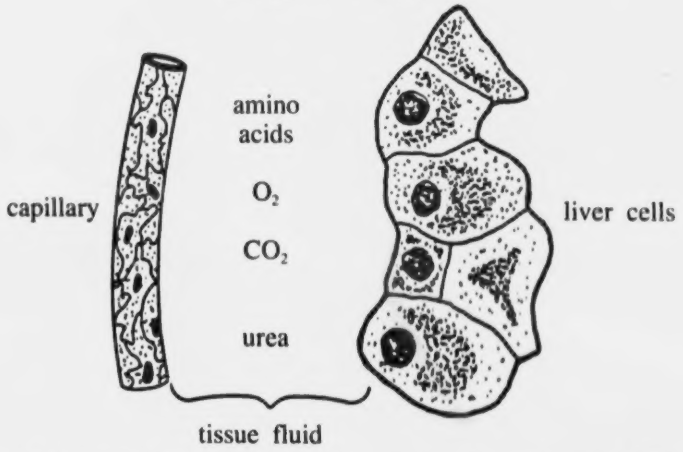


**24.** The point labelled X on the graph indicates the region

**A.** in which the active transport of blood plasma takes place
**B.** of the capillary where osmotic pressure equals blood pressure
**C.** where fluid movement is only from the capillary to the tissues
**D.** where particle concentration in the capillary equals tissue particle concentration

**Use the following diagram to answer question 25.**

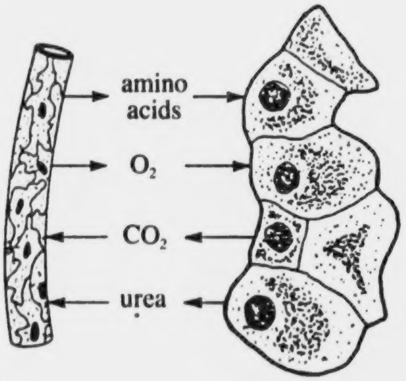
Metabolite Transfer


amino acids
$O_2$
$CO_2$
urea
capillary
liver cells
tissue fluid

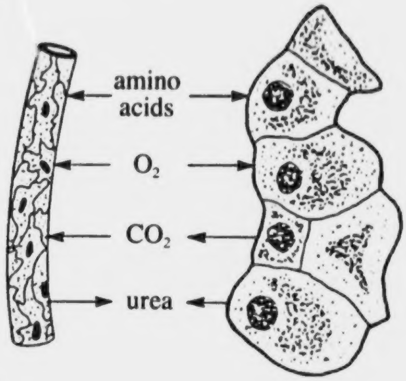
Note: Tissue fluid provides a medium of transport for cell metabolites.

**25.** Which diagram shows the correct net movement of the metabolites?

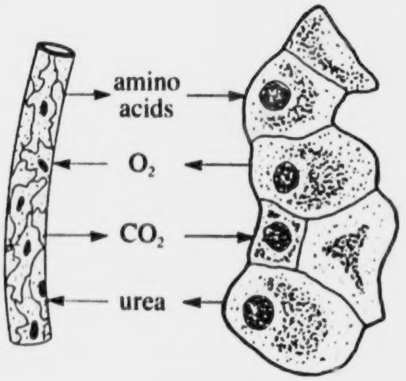
**A.**


amino acids
$O_2$
$CO_2$
urea

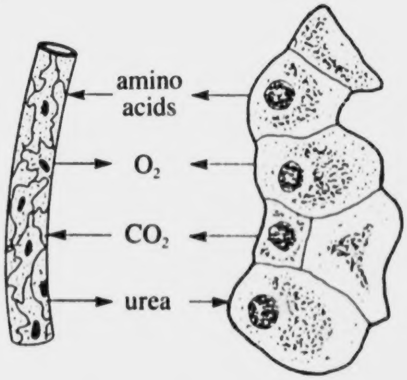
**B.**


amino acids
$O_2$
$CO_2$
urea

**C.**


amino acids
$O_2$
$CO_2$
urea

**D.**


amino acids
$O_2$
$CO_2$
urea

**Use the following case study to answer question 26.**

A Case of Hypothermia (Low Body Temperature)

An exposure victim was brought unconscious into the hospital on Sunday, December 24, 1989. The patient's blood pressure was too low to register on the sphygmomanometer. Body temperature was 25°C, and the pulse rate was 20 beats per minute. Medication was administered immediately. The following Wednesday, the patient's blood pressure was 132 mm Hg over 80 mm Hg, the pulse rate was 100 beats per minute, and body temperature was 38°C.

**26.** The patient did not suffer permanent ill effects from the exposure to cold temperature because

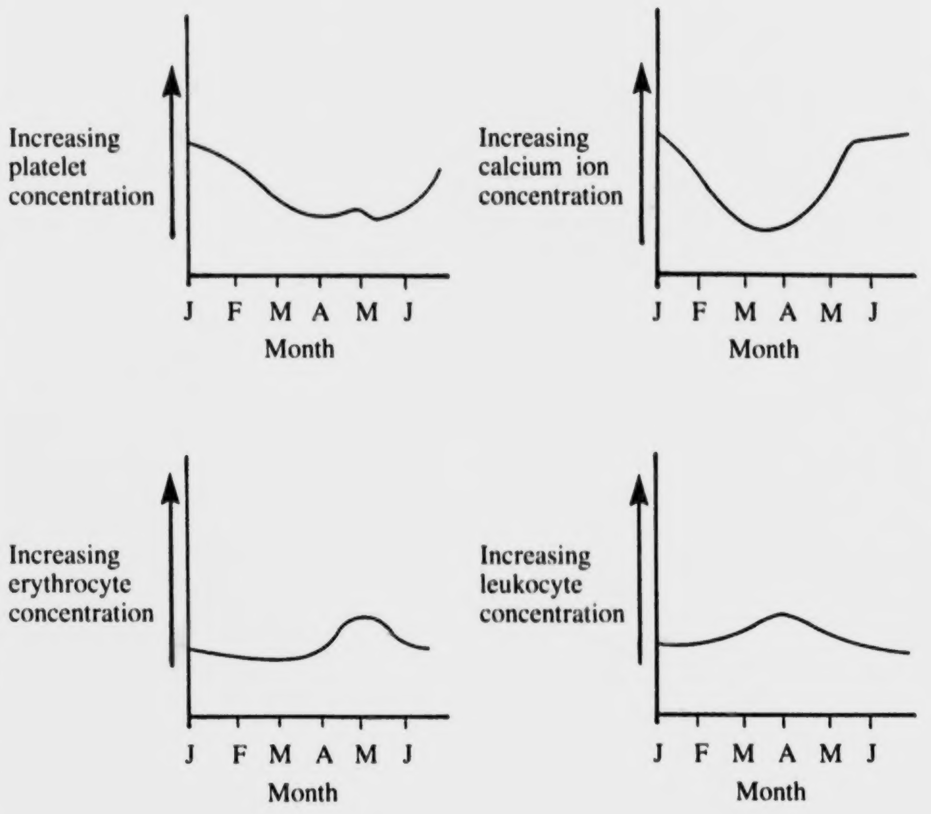
**A.** the part of the brain responsible for controlling body temperature no longer functioned at extremely low temperatures

**B.** the metabolic rate of cells, particularly in the brain, greatly increased during exposure

**C.** blood vessels in the skin dilated during exposure, thus preventing heat loss

**D.** oxygen needs of the tissues were greatly reduced at low body temperatures

**Use the following graphs to answer question 27.**


The Blood Condition of an Individual from January to June

27. During which month should this individual have avoided surgery because of a low blood clotting potential?

**A.** In June, because the calcium and platelet concentrations were high

**B.** In April, because both calcium and platelet concentrations were low

**C.** In June, because both leukocyte and platelet concentrations were changing

**D.** In April, because the erythrocyte concentration was high and calcium concentration was low

**28.** The path taken by air during exhalation is

**A.** trachea → larynx → alveolus
**B.** pharynx → larynx → bronchus
**C.** alveolus → trachea → bronchus
**D.** bronchiole → trachea → pharynx

**29.** The level of $CO_2$ in the blood regulates the breathing rate by stimulating the

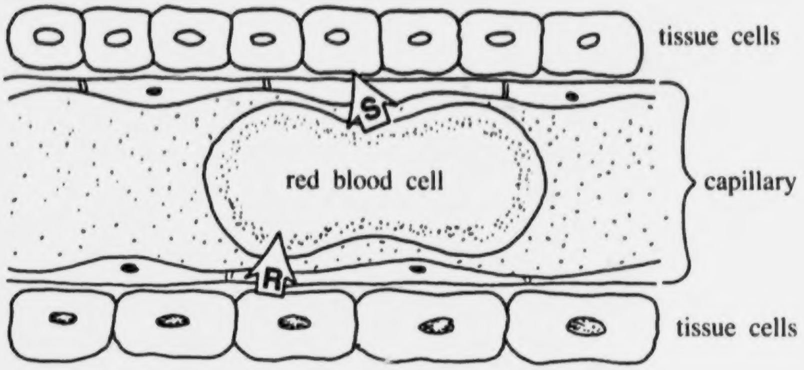
**A.** medulla oblongata
**B.** hypothalamus
**C.** diaphragm
**D.** lungs

**30.** The breathing control centre sends nerve impulses to the diaphragm and rib muscles. The next step in the breathing sequence is that the

**A.** alveolar air pressure increases and air moves in
**B.** alveolar air pressure decreases and air moves out
**C.** rib cage moves up and out and the diaphragm curves upward
**D.** rib cage moves up and out and the diaphragm flattens downward

**Use the following diagram to answer question 31.**

A Representation of Events in Glandular Tissues



**31.** The diagram represents the diffusion of

**A.** nutrients represented by R and wastes represented by S
**B.** oxygen represented by R and carbon dioxide represented by S
**C.** oxygen represented by S and carbon dioxide represented by R
**D.** oxyhemoglobin represented by R and bicarbonate ions represented by S

**Use the following information to answer question 32.**

An athlete training at sea level is able to run 1500 m in four minutes. This person moves to a high altitude, continues training for about 60 days, and then returns to sea level.

32. After returning to sea level, the athlete would probably run 1500 m in

**A.** less than four minutes because of a decreased erythrocyte count
**B.** less than four minutes because of an increased erythrocyte count
**C.** more than four minutes because of a decreased erythrocyte count
**D.** more than four minutes because of an increased erythrocyte count

---

**Use the following table to answer question 33.**

Composition of Inhaled and Exhaled Air for Subject X

| Component | Percentage by Volume | |
|---|---|---|
| | Inhaled Air | Exhaled Air |
| Nitrogen and inert gases | 78.62 | 74.90 |
| Oxygen | 20.85 | 15.30 |
| Carbon dioxide | 0.03 | 3.60 |
| Water vapor | 0.50 | 6.20 |
| TOTAL | 100.00 | 100.00 |

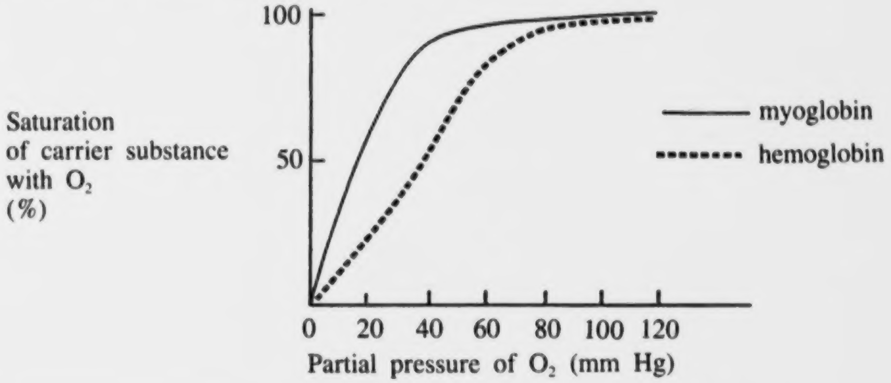
33. It would be reasonable to conclude that for Subject X,

**A.** the body uses more nitrogen than oxygen
**B.** oxygen is converted to carbon dioxide in lung alveoli
**C.** oxygen and nitrogen are essential for cellular respiration
**D.** carbon dioxide and water vapor are excreted by the lungs

---

**Use the following information to answer question 34.**

Myoglobin is found in muscle; hemoglobin is carried within red blood cells. The graph shows the ability of each protein to carry $O_2$ (to be "saturated with oxygen") in a variety of environments that differ in their $O_2$ content. Both curves are for proteins isolated from adult humans.



**34.** A correct interpretation of the graph is that

**A.** at 60 mm Hg of partial pressure of $O_2$, neither protein carries enough $O_2$ to be of value to an organism

**B.** hemoglobin can release $O_2$ when it is in an environment with little $O_2$ but myoglobin cannot

**C.** myoglobin accepts $O_2$ in a low-oxygen environment more readily than does hemoglobin

**D.** myoglobin releases $O_2$ in a high-oxygen environment more readily than does hemoglobin

---

**35.** Anaerobic respiration

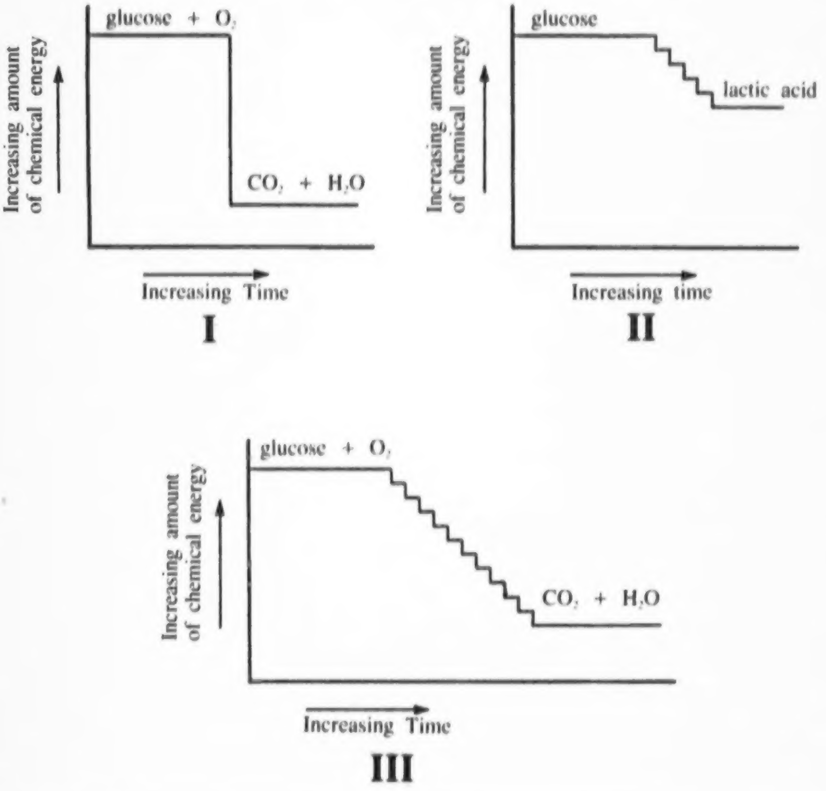
**A.** utilizes lactic acid as a fuel
**B.** takes place in the absence of $O_2$
**C.** uses $H_2O$ as a temporary hydrogen acceptor
**D.** results in the production of large amounts of ATP

**36.** An overweight person enters a hospital for an extended period of time to lose weight. The caloric content of the person's diet is drastically reduced. At the same time, this low caloric intake is supplemented by stored energy within the body. The stored energy comes mainly from

**A.** amino acids and vitamins
**B.** minerals and vitamins
**C.** carbohydrates
**D.** fats

**Use the following graphs to answer question 37.**

Three Hypothetical Graphs of Glucose Breakdown

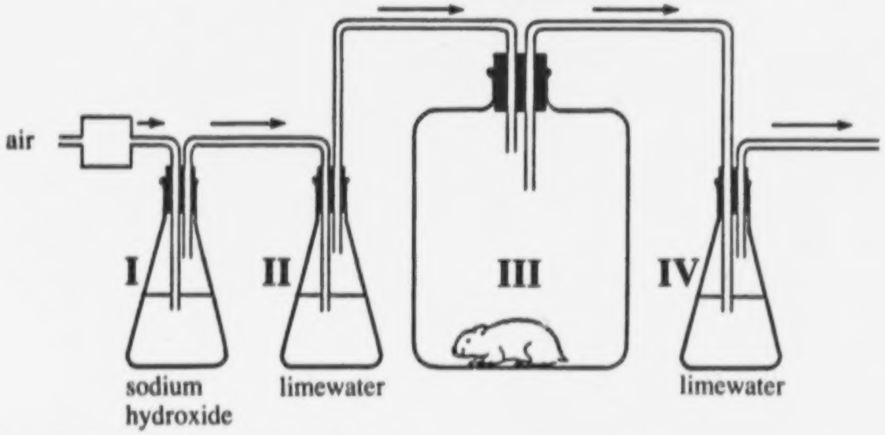


**37.** The graphs that illustrate combustion (burning) and aerobic respiration respectively are

**A.** I and II
**B.** I and III
**C.** II and III
**D.** III and II

**Use the following diagram to answer questions 38 and 39.**

A Cellular Respiration Experiment



Note: Sodium hydroxide absorbs $CO_2$.
Limewater changes from clear to milky when it reacts with $CO_2$.

**38.** The use of flasks I and II in the experiment permits the researcher to state with some degree of certainty that

- **A.** the limewater in Flask IV turns milky because of the production of $CO_2$ during cellular respiration in the animal
- **B.** the gas produced by the animal comes from the breakdown of glucose in cellular respiration
- **C.** oxygen is necessary for the animal to carry on cellular respiration
- **D.** $CO_2$ stimulates the process of cellular respiration in the animal

**39.** The experimental setup is designed to test whether animals, during cellular respiration,

- **A.** require oxygen
- **B.** oxidize glucose
- **C.** produce water vapor
- **D.** produce carbon dioxide

---

**40.** What is the correct pathway urine follows from its formation in nephrons to its exit from the body?

- **A.** Collecting duct → ureter → bladder → urethra
- **B.** Collecting duct → urethra → bladder → ureter
- **C.** Bladder → collecting duct → ureter → urethra
- **D.** Bladder → urethra → collecting duct → ureter

**41.** The tubules of the nephron help to maintain homeostasis in the body by

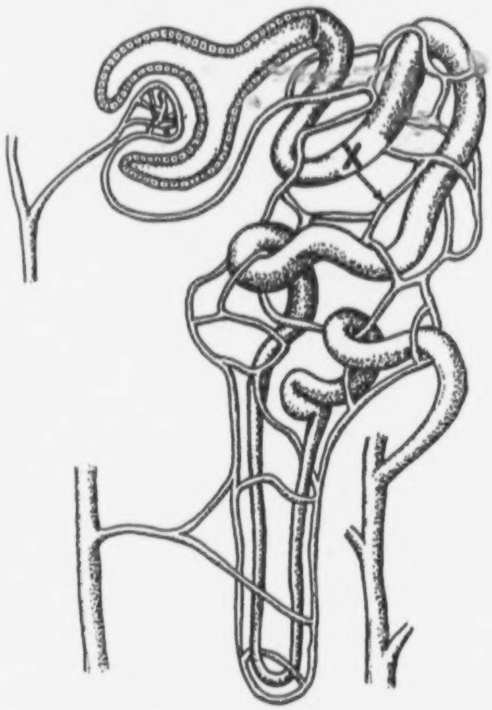
- **A.** forming urea
- **B.** removing amino acids
- **C.** collecting filtered proteins
- **D.** returning material to the blood

**42.** A blood constituent that normally does **not** enter the nephric filtrate is

- **A.** urea
- **B.** protein
- **C.** glucose
- **D.** sodium ions

**Use the following diagram to answer question 43.**

A Human Nephron and Associated Blood Vessels



**43.** The material labelled X, whose pathway is indicated by the arrow, is **best** described as

- **A.** water being reabsorbed because of an osmotic gradient
- **B.** glucose being filtered because of blood pressure
- **C.** amino acids being excreted because of diffusion
- **D.** sodium ions being reabsorbed by osmosis

---

**44.** A hemorrhage (loss of blood) results in a decrease of urine production by

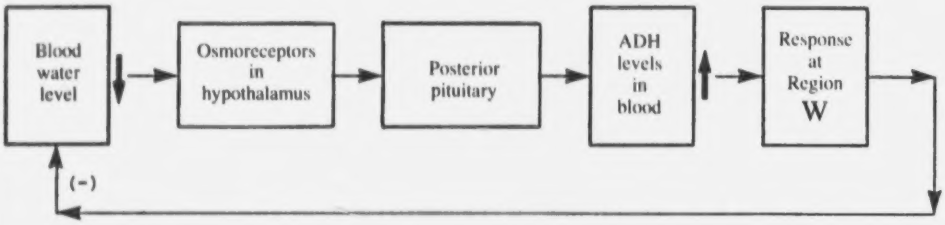
**A.** dilating the blood vessels
**B.** lowering the blood pressure
**C.** increasing the amount of filtrate
**D.** increasing plasma osmotic pressure

**45.** In response to low blood pressure, the kidney produces Substance M, which in turn causes the adrenal cortex to produce Substance N. The presence of Substance N results in the reabsorption of Substance Q and water into the blood. The reabsorption of water compensates for the low blood pressure. Substance Q is most likely

**A.** ADH
**B.** adrenaline
**C.** aldosterone
**D.** sodium ions

**Use the following information to answer question 46.**

A Feedback System to Control Water Levels in the Blood



**46.** Response at Region W is accomplished by

**A.** increasing the permeability of the proximal tubules
**B.** decreasing the permeability of the proximal tubules
**C.** increasing the permeability of the distal tubules and collecting ducts
**D.** decreasing the permeability of the distal tubules and collecting ducts

**47.** As the concentration of blood glucose rises after a meal, the concentration of liver glycogen will

**A.** begin to fall
**B.** begin to rise
**C.** be affected only slightly
**D.** change in keeping with urea production

**48.** One function of adrenaline is to regulate the conversion of

**A.** fatty acids and glycerol to fats
**B.** amino acids to urea and fat
**C.** glucose to glycogen
**D.** glycogen to glucose

**Use the following table to answer question 49.**

Age and Eye Accommodation

| Age in Years | Near Point Accommodation* (cm) |
|---|---|
| 10 | 7.5 |
| 20 | 10.0 |
| 30 | 11.5 |
| 40 | 17.2 |
| 50 | 65.9 |
| 60 | 90.0 |

*The shortest distance between the eye and a viewed object where focus of the object can still be achieved.

**49.** The loss of near point accommodation with increasing age is most **likely** due to

**A.** loss of lens flexibility
**B.** uneven curvature of the cornea
**C.** loss of light sensitivity of the rods and cones
**D.** inability of the iris to adjust to changing light conditions

**Use the following information to answer question 50.**

Examples of Hormone Regulation

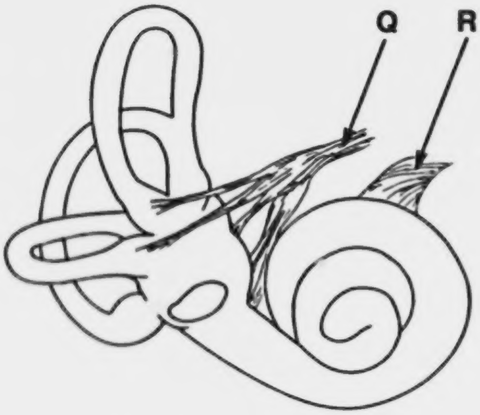
I. ADH secreted because of hypertonic blood
II. TSH secreted because of low metabolic rate
III. Oxytocin secreted because of stretching of the cervix during labor
IV. Insulin secreted because of absorption of glucose by the intestine
V. Estrogen and progesterone ingested for the prevention of ovulation

**50.** Which statements describe homeostatic responses?

**A.** I, II, and IV
**B.** I, III, and V
**C.** II and IV
**D.** III and V

**Use the following diagram to answer question 51.**

The Human Inner Ear



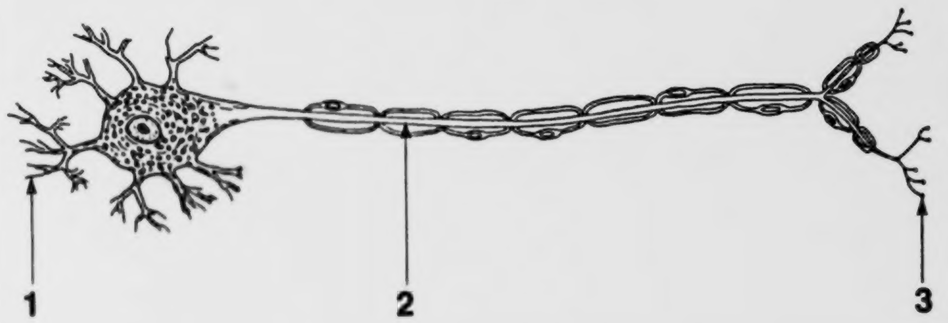
Note: Both Q and R are sensory nerves.

**51.** Which description of the sensory nerves of the inner ear is correct?

**A.** Q carries impulses from chemoreceptors
**B.** R carries impulses from sound receptors
**C.** Q carries impulses from sound receptors
**D.** R carries impulses from motion receptors

**Use the following diagram to answer question 52.**

The Structure of a Neuron



**52.** If the neuron were stimulated at Location 2, the impulse would travel toward

**A.** Location 1, where synaptic transmission occurs
**B.** Location 3, where no synaptic transmission occurs
**C.** locations 1 and 3, causing synaptic transmission at 3 only
**D.** locations 1 and 3, causing synaptic transmission at each end

---

**53.** Most conscious experiences of the external environment are initiated by impulses from

**A.** motor effectors
**B.** sensory receptors
**C.** association neurons
**D.** autonomic sympathetic nerves

**54.** The all-or-none principle of nerve action refers to the condition in which

**A.** a stimulus depolarizes all of the neurons in a nerve or no neurons at all

**B.** a stimulus activates every nerve in the body or none of the nerves at all

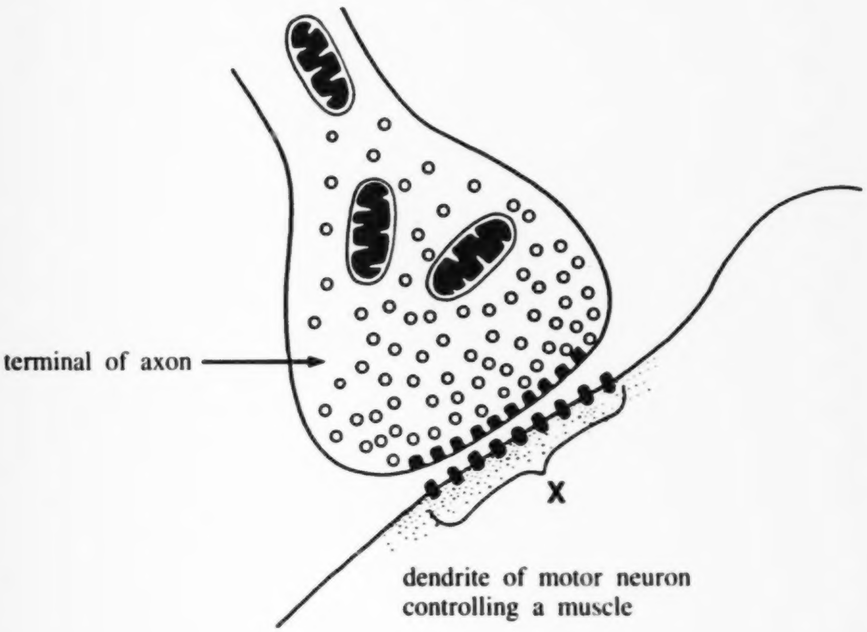
**C.** a stimulus activates a nerve cell to function to capacity or not to function at all

**D.** all stimuli reaching nerve cells activate them; therefore no stimulus goes unheeded

**55.** The nerve pathway of the impulses in a reflex response is

**A.** motor neuron → interneuron → sensory neuron → sensory receptor
**B.** sensory neuron → sensory receptor → interneuron → motor neuron
**C.** sensory receptor → sensory neuron → interneuron → motor neuron
**D.** sensory receptor → interneuron → motor neuron → sensory neuron

**Use the following diagram to answer question 56.**



The Anatomy of a Synapse

**56.** A drug that was introduced into the synapse bonded only to structures labelled X of the motor neuron, thus preventing normal function. It could be expected that

**A.** muscle paralysis would occur
**B.** the muscle would remain contracted
**C.** the neurotransmitter would not be produced
**D.** sensations originating in the muscle would be lost

**57.** An impulse moves from one neuron to an adjacent neuron by

**A.** axons of one neuron touching the axon terminals of the adjacent neuron

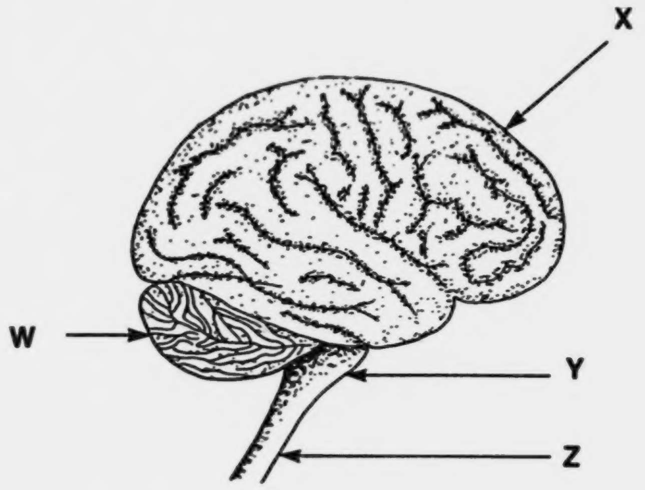
**B.** dendrites of one neuron touching the axon terminals of the adjacent neuron

**C.** a chemical transmitter released by the dendrites of one neuron stimulating the axon terminals of the adjacent neuron

**D.** a chemical transmitter released by the axon terminals of one neuron stimulating the dendrites of the adjacent neuron

**Use the following diagram to answer question 58.**

A Portion of the Human Central Nervous System



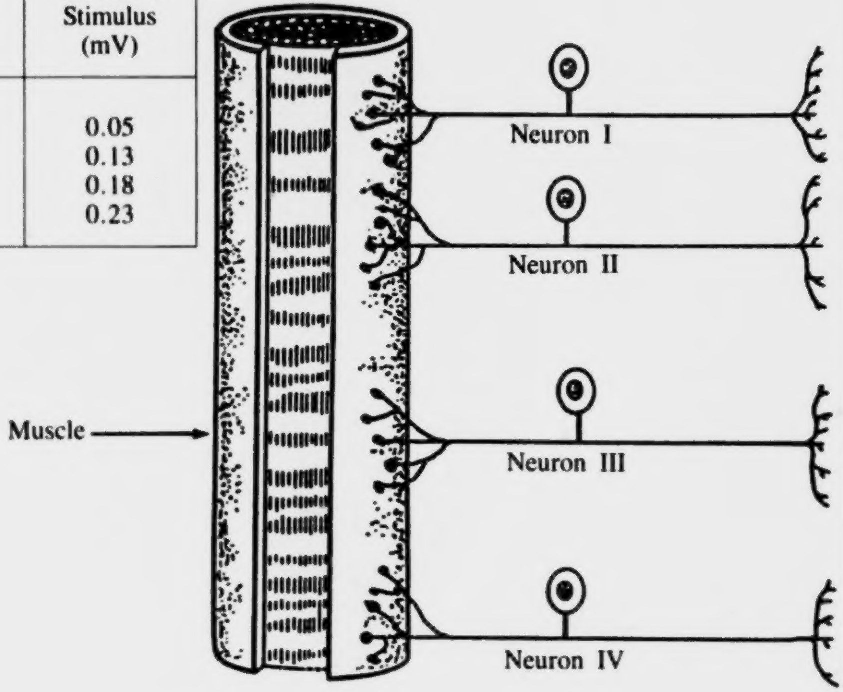
**58.** Physical co-ordination and higher mental activities such as speech and hearing are controlled by the structures labelled

**A.** W and X
**B.** X and Y
**C.** Y and W
**D.** Z and X

**Use the following information to answer question 59.**

Threshold Levels of Four Neurons

| Neuron | Threshold Stimulus (mV) |
|---|---|
| I | 0.05 |
| II | 0.13 |
| III | 0.18 |
| IV | 0.23 |

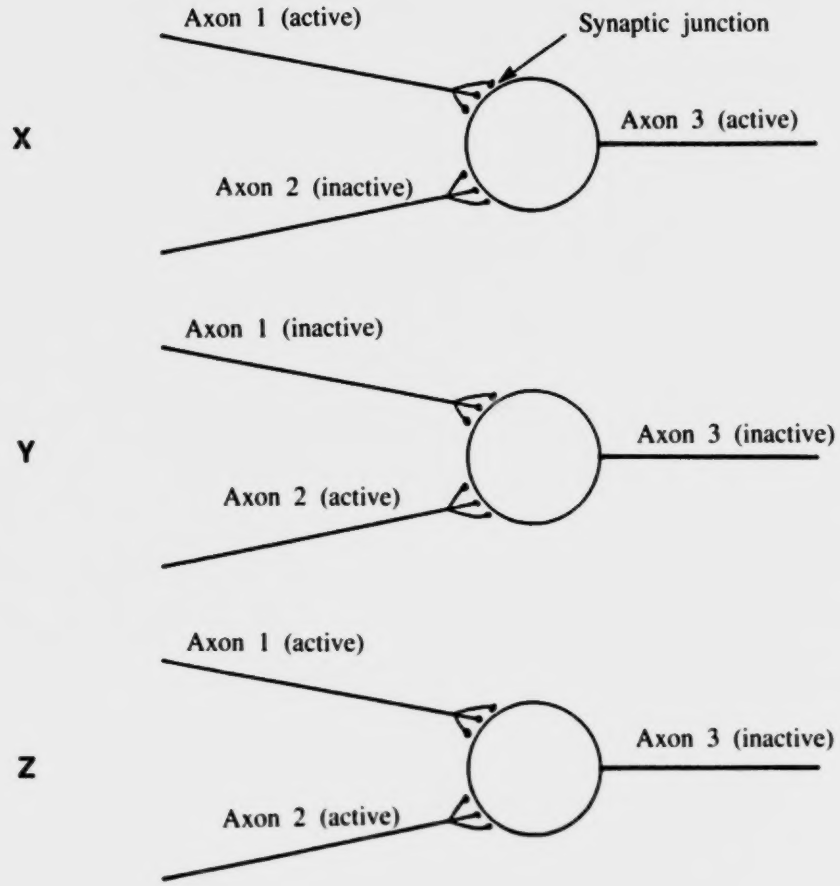

Muscle
Neuron I
Neuron II
Neuron III
Neuron IV

59. An experimenter stimulated each of the neurons with an electric current. The stimulus that would create an impulse in **both** Neuron I and Neuron II but **not** in Neuron III and Neuron IV would be

A. 0.09 mV
B. 0.15 mV
C. 0.18 mV
D. 0.22 mV

**Use the following diagrams to answer question 60.**

Three Possible Synaptic Control Patterns (X, Y, and Z)


Axon 1 (active)
Synaptic junction
X
Axon 3 (active)
Axon 2 (inactive)
Axon 1 (inactive)
Y
Axon 3 (inactive)
Axon 2 (active)
Axon 1 (active)
Z
Axon 3 (inactive)
Axon 2 (active)

Note: "Active" means the neuron is transmitting impulses.
"Inactive" means the neuron is not transmitting impulses.

**60.** If axons 1 and 2 were activated at the same time, the most likely interpretation of Diagram Z would be that

**A.** Axon 1 would inhibit the effect of Axon 2
**B.** Axon 2 would inhibit the effect of Axon 1
**C.** Axon 3 would only be affected by Axon 1
**D.** Axon 3 would increase the effect of Axon 2

**61.** Because muscle contraction requires large amounts of ATP,

**A.** ribosomes occur in large numbers in the fibrils of muscles
**B.** cells that produce energy are located close to the muscles
**C.** mitochondria are found in the fibrils of muscles
**D.** nerves must deliver ATP to the muscle

**62.** The contractile force of a muscle is determined by the

**A.** action potential at the neuromuscular junction
**B.** amount of transmitter substance secreted
**C.** threshold potential of the muscle fibre
**D.** number of motor units stimulated

**Use the following information to answer question 63.**

Some Characteristics of Smooth and Skeletal Muscles

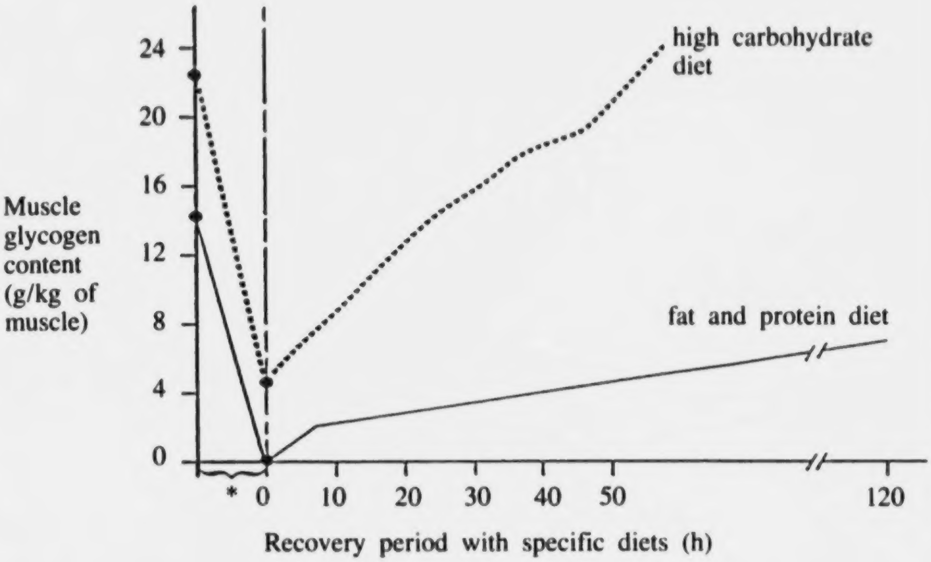
I. The muscle is in the form of long fibres.
II. The fibres show striations.
III. The fibres do not show striations.
IV. The muscle is under involuntary control.
V. The muscle is under voluntary control.
VI. Individual cells are not distinguishable.
VII. Cells are arranged in sheets.
VIII. Individual cells are easily seen.

**63.** The main features of skeletal muscle are best described by statements

**A.** I, II, V, and VI
**B.** I, II, VI, and VII
**C.** I, V, VII, and VIII
**D.** III, IV, VII, and VIII

**Use the following graph to answer question 64.**

The Effect of Diet on the Rate of Muscle Glycogen Replenishment Following Prolonged Exercise



*2 h of prolonged exercise (not drawn to scale). No food was eaten during this two-hour period.

**64.** Athletes who consume foods rich in starches following prolonged exercise replenish their energy reserves in approximately

**A.** 5 h
**B.** 15 h
**C.** 50 h
**D.** 120 h

---

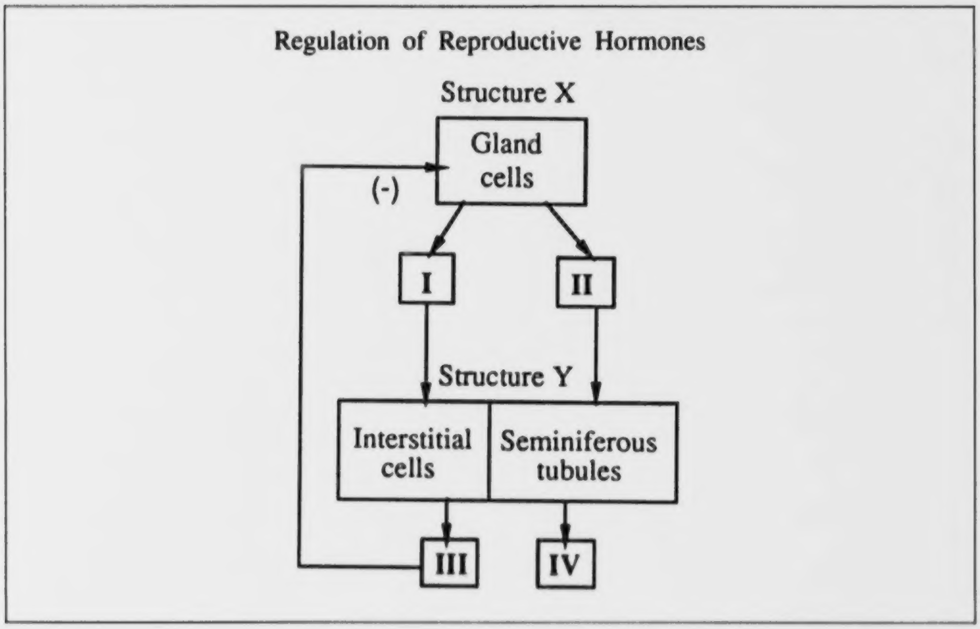
**65.** A structure in the human male that performs an important function in both excretion and reproduction is the

**A.** ureter
**B.** urethra
**C.** vas deferens
**D.** prostate gland

**66.** In human males, viable sperm cannot be produced if the

**A.** Cowper's glands are inactive
**B.** prostate gland has been removed
**C.** vasa deferentia have been severed
**D.** testes have not descended into the scrotum

**Use the following flow chart to answer question 67.**


Regulation of Reproductive Hormones
Structure X
Gland cells
(-)
I
II
Structure Y
Interstitial cells
Seminiferous tubules
III
IV

**67.** The products represented by the numbers I, II, III, and IV respectively are

**A.** ICSH (LH), FSH, sperm, and testosterone
**B.** FSH, ICSH (LH), testosterone, and sperm
**C.** ICSH (LH), FSH, testosterone, and sperm
**D.** FSH, ICSH (LH), sperm, and testosterone

---

**68.** Damage to a female's pituitary gland just before puberty may result in

**A.** a reduction in estrogen production and inhibition of the development of secondary sexual characteristics

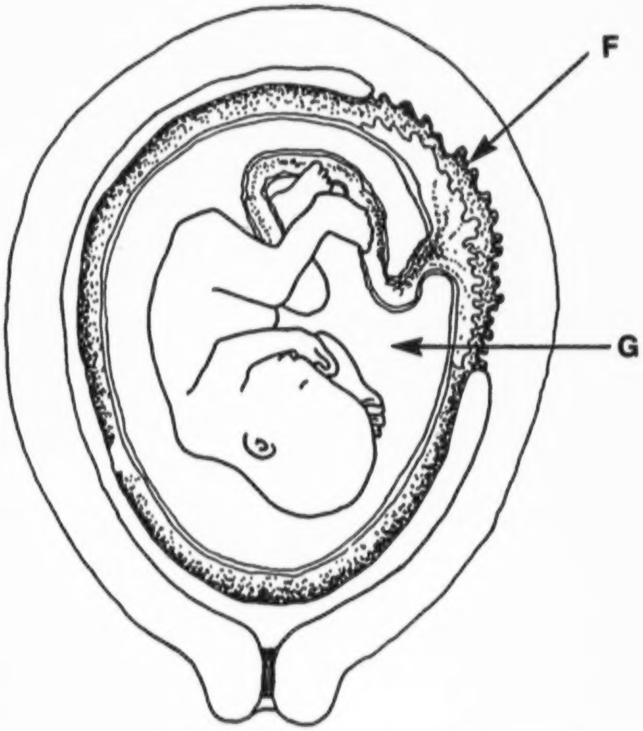
**B.** a reduction in estrogen production and stimulation of the development of secondary sexual characteristics

**C.** an increase in progesterone production and inhibition of the development of secondary sexual characteristics

**D.** an increase in progesterone production and stimulation of the development of secondary sexual characteristics

**Use the following diagram to answer questions 69 and 70.**

Relationship Between Extraembryonic Membranes and Fetus



**69.** Which hormone is responsible for the maintenance of tissue labelled F?

**A.** FSH
**B.** Oxytocin
**C.** Aldosterone
**D.** Progesterone

**70.** Which is **not** a function of the region labelled G?

**A.** Protects the fetus from mechanical injury
**B.** Provides a primitive lung for gas exchange
**C.** Provides a fluid environment for fetal growth
**D.** Protects the fetus from sudden temperature changes

---

**YOU HAVE NOW COMPLETED THE MULTIPLE-CHOICE PART OF THE EXAMINATION. PROCEED DIRECTLY TO PART B.**

# PART B

## INSTRUCTIONS

In this part of the examination, there are seven written-response questions for a total of 30 marks.

Read each question carefully. Write your answers in the examination booklet as neatly as possible.

Communicate your answers in clear, concise statements. Marks will be awarded for pertinent explanations and answers. Question 5 has two marks allotted for written communication skills.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

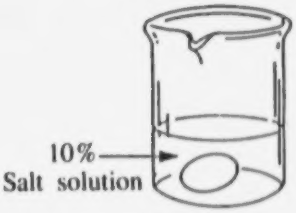
**START PART B IMMEDIATELY.**

**Use the following information to answer question 1.**

An Investigation of Cell Processes

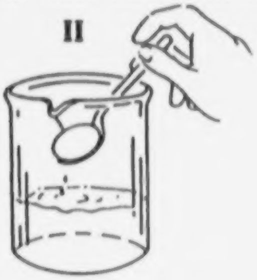
The shell of a fresh chicken egg was removed by dissolving it in certain chemicals. The egg white and yolk, surrounded by soft membranes, were left intact. The mass of the unshelled egg was determined. Then steps I to VI, as outlined below, were followed. After the egg was submerged in distilled water (Step VI) for 16 minutes, steps II to V were repeated. It was observed that the mass of the egg was different for each of the three measurements.

**I**



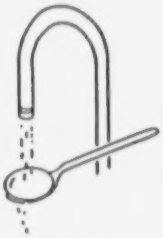
Submerge egg
for 8 minutes

**II**



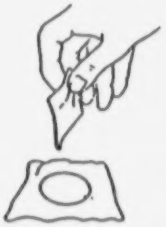
Remove egg
with spoon

**III**



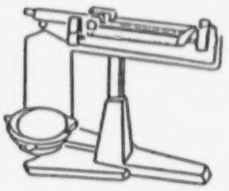
Rinse egg

**IV**



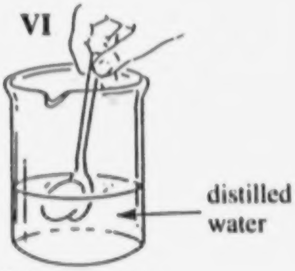
Dry egg

**V**



Determine mass

**VI**



Submerge egg
for 16 minutes

Note: Assume that the egg is a single cell with a salt concentration of 0.9%.

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USE ON

(5 mark

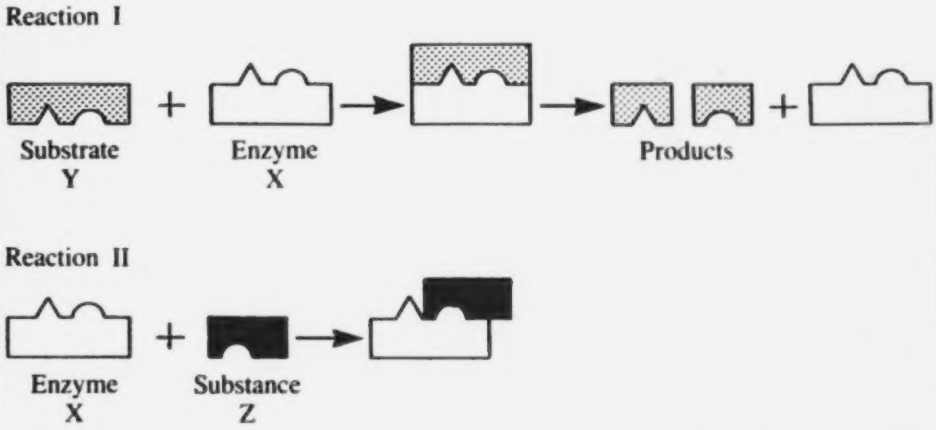
1. **a.** In relation to the mass of the unshelled, untreated egg, predict how the mass of the egg would change after the first treatment (Step I). Explain why the change would occur.

**b.** In relation to the mass of the unshelled, untreated egg, predict how the mass of the egg would change after the second treatment (Step VI). Explain why the change would occur.

**c.** Explain why steps III and IV are necessary in the investigation.

**Use the following information to answer question 2.**

Enzyme-Substrate Reactions in Bacterial Cells


Reaction I
Substrate Y
Enzyme X
Products
Reaction II
Enzyme X
Substance Z

**2.** **a.** If Substance Z were introduced into Reaction I, how would the reaction be affected?

**b.** If Substance Z were an antibiotic, explain how it would be useful in controlling the growth of bacteria.

3. Choose **three** body systems that would be affected by insufficient dietary calcium. Identify an effect of such a shortage on each system. (3 marks)

System 1 ________________________________________

System 2 ________________________________________

System 3 ________________________________________

4. In an artificial kidney, blood passes through very small channels bounded by thin, porous membranes. The membranous channels along with the blood are suspended in a dialyzing fluid. Describe the main principle on which the transfer of solutes from the blood into the dialyzing fluid is based. Identify two possible conditions that control the amount of substances transferred (removed). ([illegible])

**5.** After a severe cut, a patient's symptoms were recorded as follows:

I. weak pulse
II. rapid pulse
III. lower body temperature
IV. slightly blue or dark purple coloration of the fingertips

Explain how blood loss caused each of the above symptoms.

(Four marks will be allotted for concepts and two marks for evidence of logical thought expressed with appropriate vocabulary.)

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(6 marks)

6. A hiker is frightened by the sight of a bear. In response, the autonomic nervous system prepares the hiker's body for appropriate reactions. Select **one** organ from each of the systems listed and describe the changes the organ undergoes. Explain how each of the changes helps the hiker to meet the emergency.

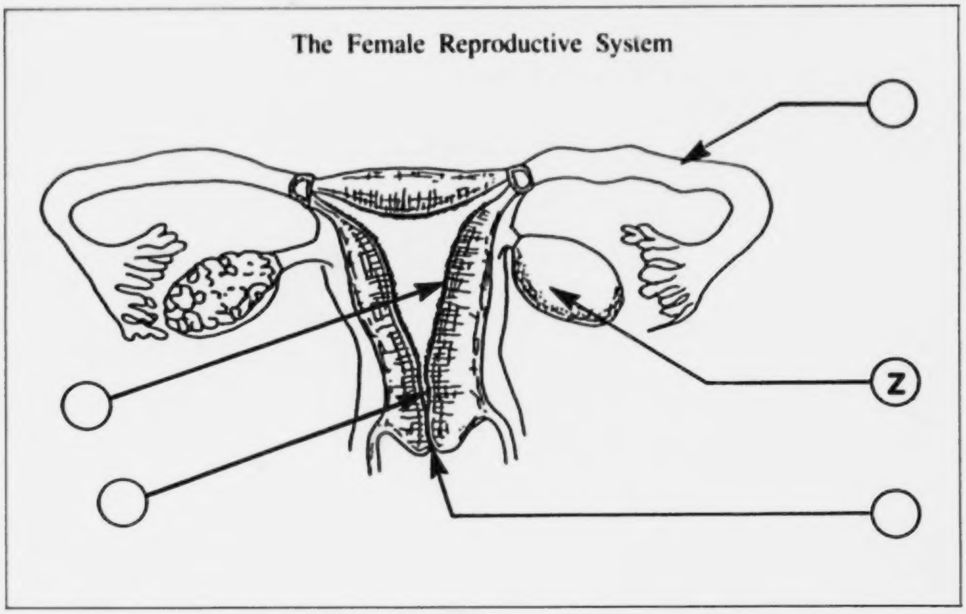
   **a.** The Circulatory System

   **b.** The Endocrine System

   **c.** The Digestive System

**Label this diagram as directed in question 7.**

The Female Reproductive System



[illegible]

7. **a.** On the above diagram, indicate:

   - the usual site of fertilization by placing an X in the circle of the arrow pointing to the correct structure
   - the usual area of implantation by placing a Y in the circle of the arrow pointing to the correct structure

   **b.** Explain how FSH and LH would affect the organ labelled Z.

   (i) FSH ________________________________________

   ________________________________________________

   ________________________________________________

   (ii) LH ________________________________________

   ________________________________________________

   ________________________________________________

**YOU HAVE NOW COMPLETED THE EXAMINATION. IF YOU HAVE TIME, YOU MAY WISH TO GO BACK AND CHECK YOUR ANSWERS.**

TEAR OFF PAGE

(NO MARKS WILL BE GIVEN FOR WORK DONE ON THIS PAGE)

FOLD AND TEAR ALONG PERFORATION

**FOR DEPARTMENT USE ONLY**

**M1** ☐

**M2** ☐

**M3** ☐

**M4** ☐

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BIOLOGY 30

**NAME:** (LAST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ (FIRST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐ **DATE OF BIRTH:** Y ☐☐ M ☐☐ D ☐☐ **SEX:** ☐

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BIOLOGY 30

FORTIS ET LIBER

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

## Biologie 30

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# BIOLOGIE 30

## DESCRIPTION

**Durée:** Deux heures et demie

**Total des points possibles:** 100

C'est un examen **à livre fermé** qui comprend **deux** parties:

La PARTIE A a 70 questions à choix multiples dont chacune vaut un point.

La PARTIE B a sept questions écrites pour un total de 30 points.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

## INSTRUCTIONS GÉNÉRALES

Remplissez les renseignements demandés sur la feuille de réponses et sur le livret d'examen en suivant les instructions de l'examinateur.

Lisez attentivement les instructions pour chaque partie avant de commencer.

**NE PLIEZ NI LA FEUILLE DE RÉPONSES NI LE LIVRET D'EXAMEN.**

L'examinateur ramassera votre feuille de réponses et votre livret d'examen et les fera parvenir à Alberta Education.

JANVIER 1990

## PARTIE A

**INSTRUCTIONS**

Il y a 70 questions à choix multiples dans cette partie de l'examen et chacune d'elles a une valeur d'un point.

Lisez chaque question attentivement et choisissez, parmi les réponses proposées, celle qui complète **le mieux** l'énoncé ou répond **le mieux** à la question. Trouvez le numéro de cette question sur la feuille de réponses séparée qui est fournie et remplissez l'espace qui correspond à votre choix. **Utilisez seulement un crayon HB.**

**Exemple**

Cet examen porte sur la matière suivante

A. Biologie
B. Physique
C. Chimie
D. Mathématiques

**Feuille de réponses**

| A | B | C | D |
|---|---|---|---|
| ● | ② | ③ | ④ |

Si vous voulez changer votre réponse, effacez complètement votre première réponse.

> **NOTE:** Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

**NE TOURNEZ PAS LA PAGE POUR COMMENCER L'EXAMEN**
**AVANT QUE L'EXAMINATEUR NE VOUS LE DISE.**

1. Les organelles cellulaires du tissu musculaire qui contribuent à une augmentation de la température du corps sont les

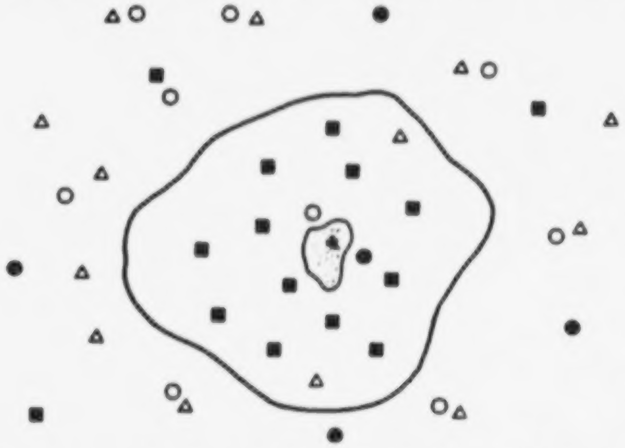
   A. lysosomes
   B. ribosomes
   C. mitochondries
   D. appareils de Golgi

2. La partie de la cellule directement responsable de maintenir un niveau relativement constant de solutés cellulaires est

   A. la vacuole de réserve
   B. l'appareil de Golgi
   C. la membrane cellulaire
   D. la mitochondrie

Utilisez l'information suivante pour répondre à la question 3.

Diagramme donnant la répartition de quatre différents types de molécules à l'intérieur et à l'extérieur d'une cellule



Note: Supposez que la membrane cellulaire est également perméable à chaque type de molécule.

3. L'énergie provenant de l'ATP serait nécessaire pour faire entrer quel type de molécule dans la cellule?

   A. ○

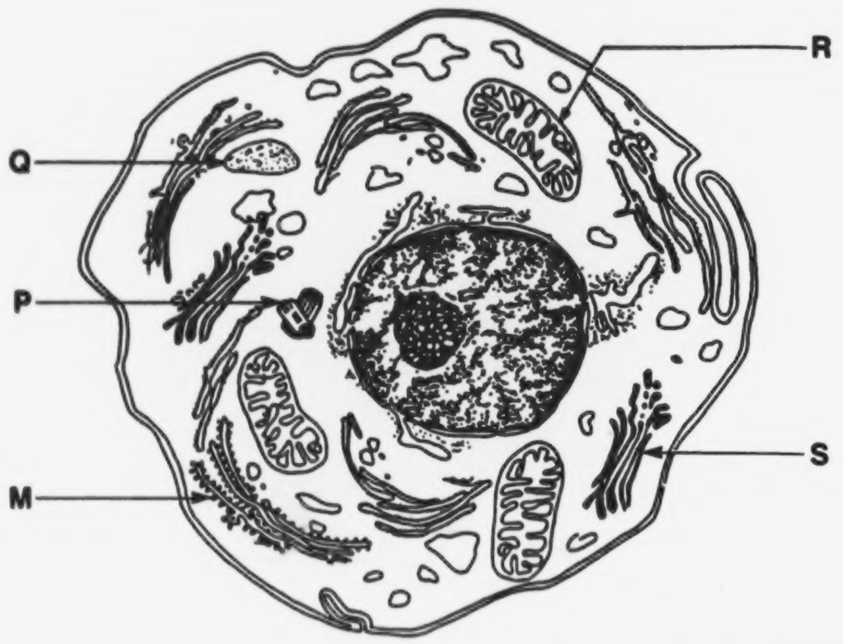
   B. ■

   C. △

   D. ●

Utilisez le diagramme suivant pour répondre à la question 4.

Cellule humaine généralisée donnant les organelles subcellulaires



4. Quelles organelles légendées fonctionneraient dans la synthèse et la libération d'hormones pour contrôler les niveaux de sucre du sang?

   A. M et P
   B. M et S
   C. Q et R
   D. Q et S

---

5. L'ébullition a un effet sur les réactions contrôlées par une enzyme en

   A. dénaturant l'enzyme
   B. augmentant le taux de réaction
   C. augmentant l'énergie d'activation
   D. diminuant l'énergie d'activation

6. Le segment de l'appareil digestif qui reçoit le premier les enzymes pancréatiques et la bile est

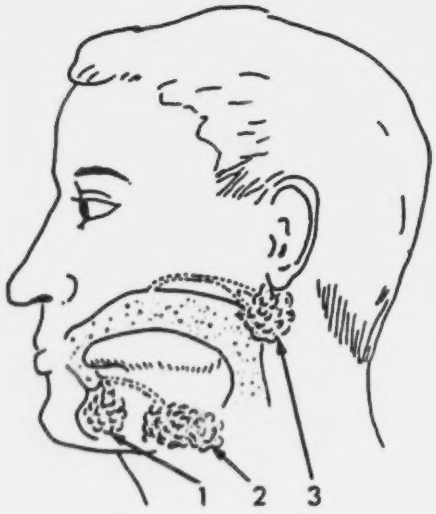
   A. la vésicule biliaire
   B. le duodénum
   C. le pancréas
   D. le foie

7. Quand on a fait un test sur du blanc d'oeuf pour voir s'il contenait des protéines, une masse rose violacé s'est formé. L'indicateur ajouté à la suspension de blanc d'oeuf était

A. de l'iode
B. du Soudan IV
C. le réactif de Biuret
D. le réactif de Benedict

Utilisez le diagramme suivant pour répondre à la question 8.

Section de la bouche et quelques structures associées



8. L'odeur de nourriture stimule la libération de sécrétions des structures 1, 2 et 3. C'est un exemple de quel type de contrôle?

A. Mécanique
B. Volontaire
C. Hormonal
D. Nerveux

---

9. Comparés à beaucoup d'autres organismes, les humains produisent un grand nombre d'enzymes digestives. Cette diversité d'enzymes est probablement liée à

A. la diversité des aliments que les humains consomment
B. la longueur du tube digestif humain
C. la difficulté de digérer les protéines et les lipides
D. l'incapacité des enzymes digestives d'être utilisées indéfiniment

**Utilisez l'information suivante pour répondre aux questions 10 et 11.**

Une personne atteinte d'hépatite a perdu 95% de sa fonction hépatique. Après avoir fait un repas contenant des glucides, des protéines et des lipides, et en laissant assez de temps pour que la digestion et l'absorption se fassent, la personne a eu une analyse de sang. Par comparaison avec la composition normale du sang, les niveaux de glucose étaient trois fois plus élevés, les niveaux d'ammoniac étaient supérieurs à la normale et les niveaux de protéine du plasma étaient inférieurs à la normale.

10. La meilleure explication pour les niveaux élevés de glucose dans le sang est que

    A. les protéines et les graisses de l'organisme ont été converties en glucose par le foie

    B. le glucose du sang n'était pas converti en énergie utilisable par le foie

    C. les réserves de glycogène du foie étaient libérées dans le sang sous forme de glucose

    D. le glucose de la digestion des glucides n'était pas converti en glycogène par le foie

11. L'ammoniac formé par les bactéries dans le gros intestin et absorbé par le sang est normalement enlevé par le foie. L'absence de quelle fonction du foie cause l'accumulation d'ammoniac dans le sang du malade souffrant d'hépatite?

    A. La décomposition des aminoacides
    B. La synthèse des protéines du sang
    C. La synthèse de l'urée
    D. La sécrétion de bile

**Utilisez l'information suivante pour répondre à la question 12.**

**Deux caractéristiques de quatre enzymes digestives**

| Caractéristique | Enzyme | | | |
|---|---|---|---|---|
| | R | S | T | V |
| pH optimum pour que l'enzyme fonctionne | 6-7 | 7-8 | 1-2 | 7-8 |
| Substrat sur lequel agit l'enzyme | amidon | graisses | protéines | maltose |

12. Par quelles structures les enzymes R, S, T et V seraient-elles respectivement sécrétées?

    A. Intestin grêle, pancréas, estomac et duodénum
    B. Duodénum, pancréas, estomac et glandes salivaires
    C. Glandes salivaires, pancréas, estomac et intestin grêle
    D. Pancréas, estomac, intestin grêle et glandes salivaires

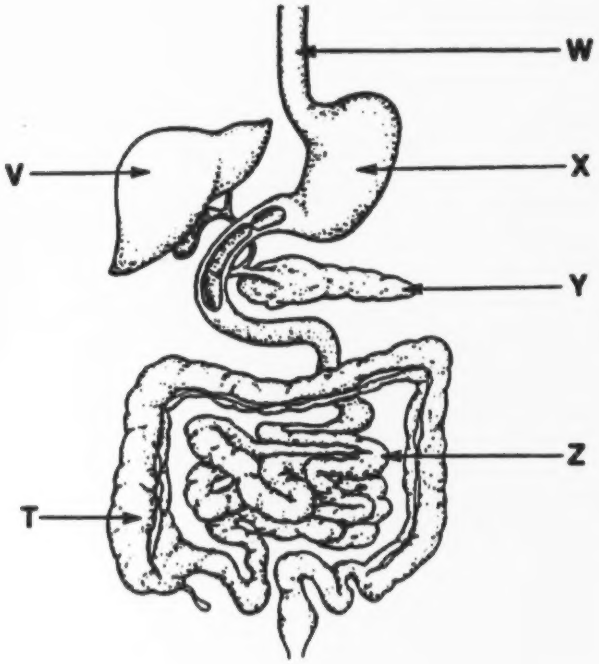
---

13. La faiblesse musculaire peut résulter d'un manque de certaines vitamines qui sont nécessaires pour

    A. produire des liaisons phosphate de haute énergie
    B. former des coenzymes qui sont nécessaires au métabolisme cellulaire
    C. contrôler le transport passif nécessaire à la production d'énergie
    D. contenir des liaisons phosphate de haute énergie, nécessaires à la contraction

Utilisez le diagramme suivant pour répondre à la question 14.

L'Appareil digestif humain

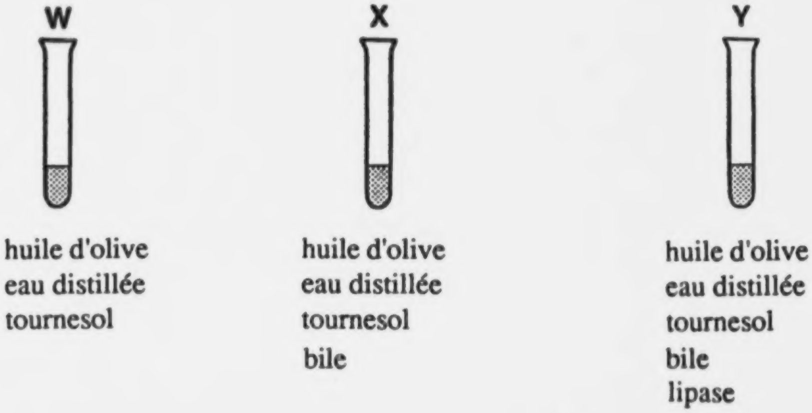


14. Quel groupe de lettres identifie trois structures qui subissent le péristaltisme?

A. T, V et Z
B. T, W et Z
C. V, W et X
D. V, X et Y

**Utilisez l'information suivante pour répondre aux questions 15 et 16.**

**Pour étudier la digestion d'un composé organique, on a installé les éprouvettes W, X et Y avec le contenu indiqué. Le pH du contenu des trois éprouvettes était neutre ou ajusté pour être neutre au début de l'expérience.**


W
X
Y
huile d'olive
eau distillée
tournesol
huile d'olive
eau distillée
tournesol
bile
huile d'olive
eau distillée
tournesol
bile
lipase

**Note: Le tournesol est bleu dans une solution neutre ou basique et rouge dans une solution acide.**

**15. Si on compare les éprouvettes W, X et Y, le contenu de l'éprouvette X simulerait (représenterait) le plus fidèlement le contenu de l'intestin grêle d'une personne qui a**

- **A. des calculs biliares**
- **B. un ulcère gastrique**
- **C. une digestion normale des lipides**
- **D. un canal pancréatique bloqué**

**16. Après avoir incubé à 37°C pendant une heure les éprouvettes et leur contenu, on a observé que le contenu de l'éprouvette Y virait au rouge. Qu'est-ce qui a causé le changement de pH?**

- **A. Les acides gras**
- **B. L'acide lactique**
- **C. Les aminoacides**
- **D. Les acides nucléiques**

Utilisez l'information suivante pour répondre à la question 17.

| Digestion enzymatique de l'amidon | | |
|---|---|---|
| Éprouvette | Contenu (Incubé à 37°C pendant 20 min) | Indicateur ajouté au contenu des éprouvettes pour identifier les réactifs ou les produits |
| 1 | 0,1 g amidon + 3 mL $H_2O$ distillée | Iode |
| 2 | 0,1 g amidon + 3 mL $H_2O$ distillée | Benedict |
| 3 | 0,1 g amidon + 3 mL solution d'amylase | Iode |
| 4 | 0,1 g amidon + 3 mL solution d'amylase | Benedict |
| 5 | 0,1 g amidon + 3 mL solution d'amylase bouillie | Iode |
| 6 | 0,1 g amidon + 3 mL solution d'amylase bouillie | Benedict |

17. Les témoins de l'expérience sont les éprouvettes

A. 1 et 2
B. 1 et 4
C. 3 et 4
D. 3 et 5

---

18. Quelle situation fournit la **meilleure** preuve à l'appui de la prédiction que "la sécrétion des enzymes du pancréas est sous contrôle hormonal"?

A. Le pancréas libère des enzymes quand la nourriture entre dans l'intestin grêle d'un chien.

B. Si les nerfs menant au pancréas d'un chien affamé sont coupés, aucune enzyme n'est libérée par le pancréas.

C. Quand les appareils circulatoires de deux chiens sont reliés et que l'on place de la nourriture dans l'intestin d'un chien, le pancréas de chaque chien sécrète des enzymes.

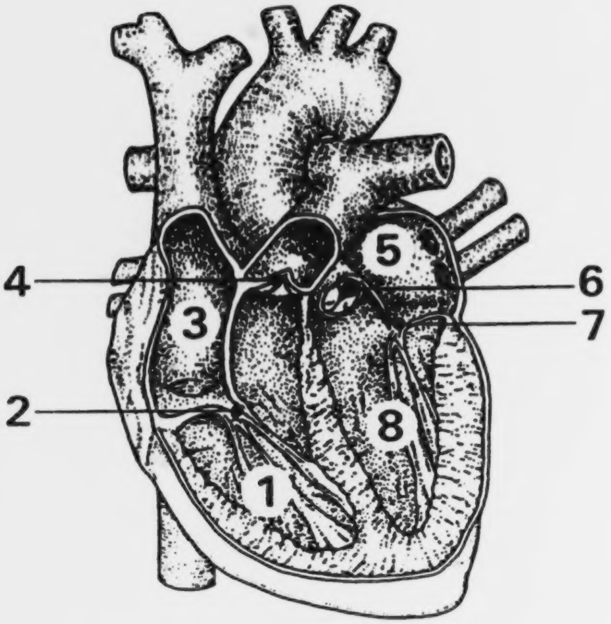
D. Quand on empêche le sang de l'intestin d'un chien d'atteindre le pancréas et qu'on stimule un nerf menant au pancréas, le pancréas sécrète des enzymes.

19. Le pH du sang est maintenu relativement constant par

A. la pression osmotique
B. les hormones
C. les enzymes
D. les tampons

Utilisez le diagramme suivant pour répondre aux questions 20 et 21.

Coupe transversale du coeur humain



20. Quelle cavité du coeur reçoit le sang de la circulation pulmonaire?

A. 1
B. 3
C. 5
D. 8

21. Le premier bruit du coeur (bruit un) est produit par la fermeture des valves

A. 2 et 4
B. 2 et 7
C. 6 et 4
D. 6 et 7

22. La tension artérielle augmenterait si

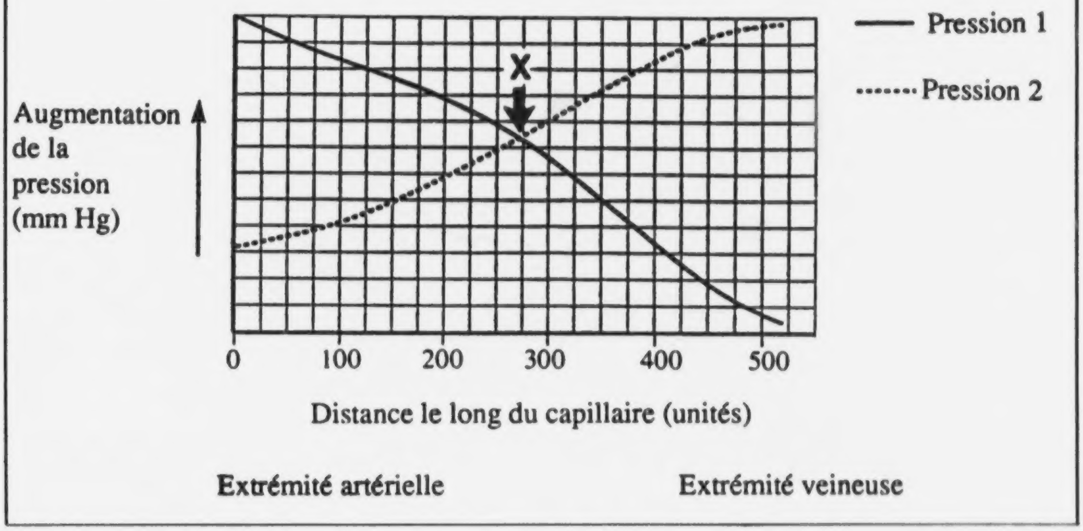
A. la viscosité (épaisseur) du sang diminuait
B. le diamètre des artérioles augmentait
C. le volume du sang augmentait
D. le rythme cardiaque diminuait

23. Deux fonctions du système lymphatique chez un adulte sont

A. le transport des gaz et l'absorption des graisses
B. l'absorption des graisses et le contrôle des maladies
C. la production des globules rouges et le transport des gaz
D. la production des globules rouges et le contrôle des maladies

Utilisez le graphique suivant pour répondre à la question 24.

Changements des pressions artérielle et osmotique dans un capillaire



24. Le point X sur le graphique indique la région

A. dans laquelle le transport actif du plasma sanguin a lieu

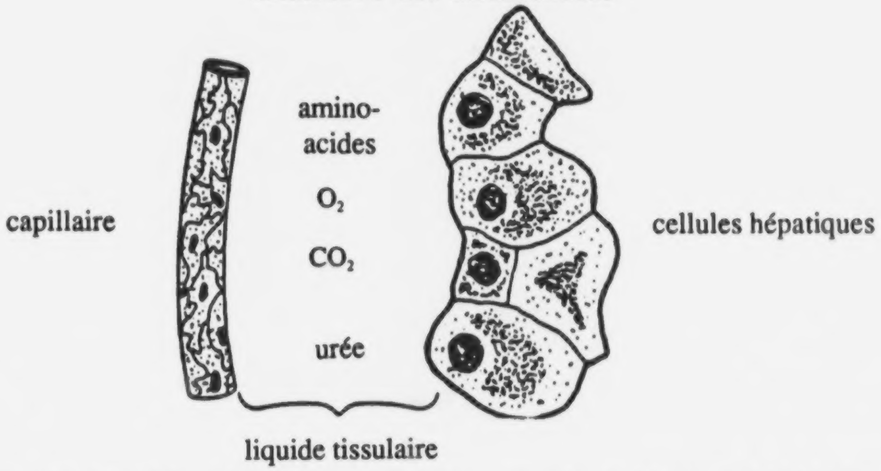
B. du capillaire où la pression osmotique égale la pression sanguine

C. où le mouvement des liquides se fait seulement du capillaire vers les tissus

D. où la concentration des particules dans le capillaire égale la concentration des particules tissulaires

Utilisez le diagramme suivant pour répondre à la question 25.

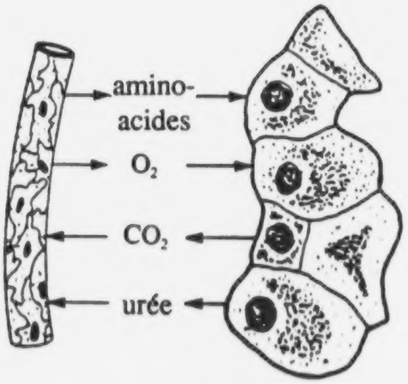
Transfert des métabolites


amino-acides
$O_2$
$CO_2$
urée
capillaire
cellules hépatiques
liquide tissulaire

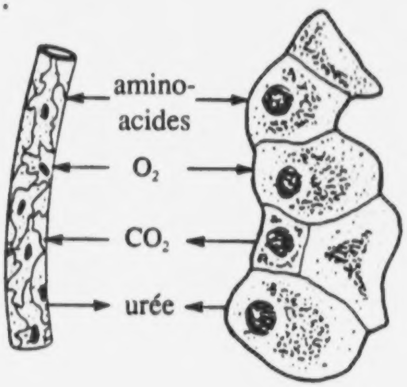
Note: Le liquide tissulaire fournit aux métabolites cellulaires un milieu de transport.

25. Quel diagramme donne le mouvement net juste des métabolites?

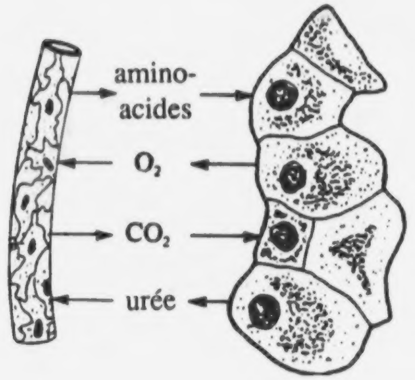
A.


amino-acides
$O_2$
$CO_2$
urée

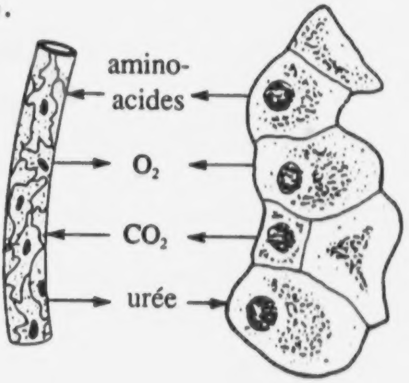
B.


amino-acides
$O_2$
$CO_2$
urée

C.


amino-acides
$O_2$
$CO_2$
urée

D.


amino-acides
$O_2$
$CO_2$
urée

Utilisez l'étude de cas suivante pour répondre à la question 26.

**Cas d'hypothermie (basse température du corps)**

Une victime du froid a été amenée inconsciente à l'hôpital le dimanche 24 décembre 1989. La tension artérielle de la patiente était trop basse pour s'inscrire sur le sphygmomanomètre. La température du corps de la patiente était de 25°C et son pouls était de 20 pulsations par minute. Un médicament a été administré immédiatement. Le mercredi suivant, la tension artérielle de la patiente était de 132 mm Hg, son pouls était de 100 par minute et sa température de 38°C.

26. La patiente n'a pas souffert d'effets néfastes permanents pour avoir été exposée au froid parce que

A. la partie du cerveau responsable de contrôler la température du corps ne fonctionnait plus à des températures extrêmement basses

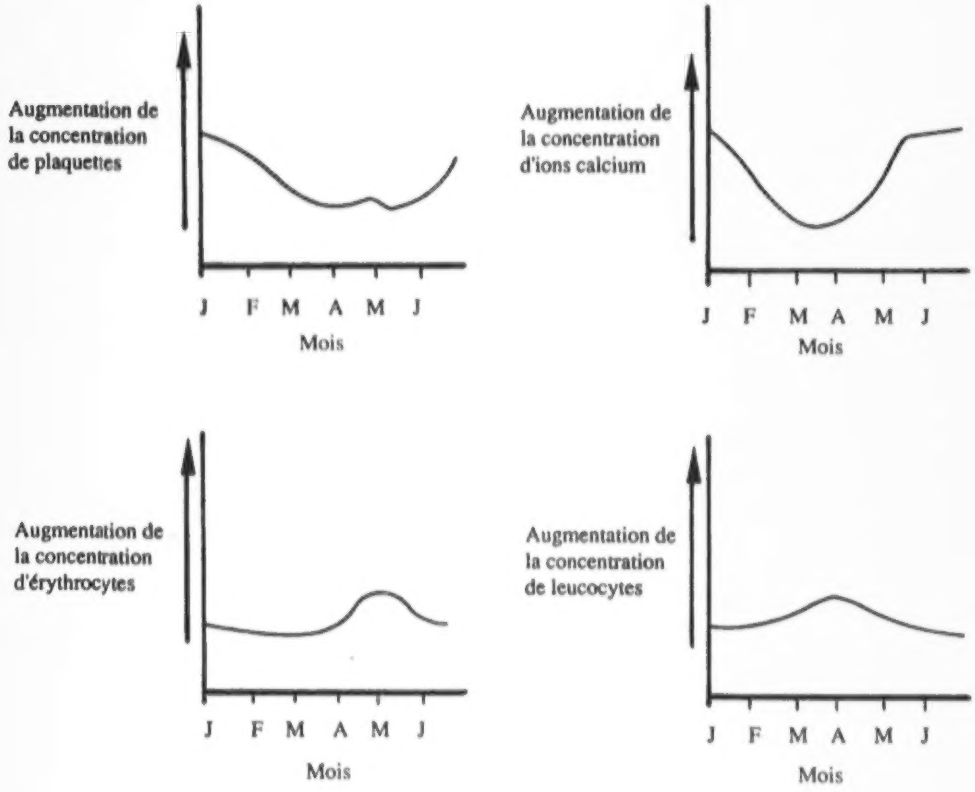
B. le taux métabolique des cellules, en particulier dans le cerveau, a augmenté considérablement pendant l'exposition au froid

C. les vaisseaux sanguins dans la peau se sont dilatés pendant l'exposition au froid, ceci empêchant les pertes de chaleur

D. les besoins d'oxygène des tissus étaient considérablement réduits à de basses températures du corps

**Utilisez les graphiques suivants pour répondre à la question 27.**

**État du sang d'un individu de janvier à juin**



27. Pendant quel mois cet individu aurait-il dû éviter toute chirurgie à cause de son faible potentiel de coagulation?

A. En juin, parce que les concentrations de calcium et de plaquettes étaient élevées.

B. En avril, parce que les concentrations de calcium et de plaquettes étaient faibles.

C. En juin, parce que les concentrations de leucocytes et de plaquettes changaient.

D. En avril, parce que la concentration d'érythrocytes était élevée et celle de calcium était basse.

---

28. La voie suivie par l'air pendant l'exhalation est

A. trachée → larynx → alvéole
B. pharynx → larynx → bronche
C. alvéole → trachée → bronche
D. bronchiole → trachée → pharynx

29. Le niveau de $CO_2$ dans le sang règle le rythme respiratoire en stimulant

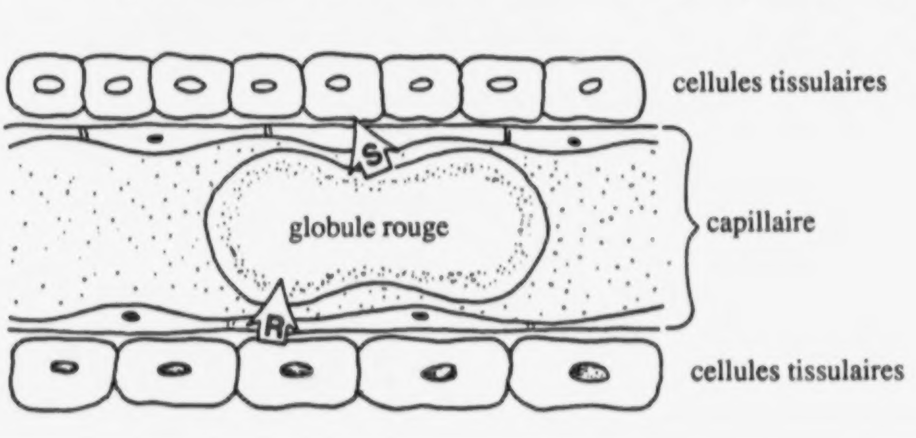
A. le bulbe rachidien
B. l'hypothalamus
C. le diaphragme
D. les poumons

30. Le centre de contrôle de la respiration envoie les influx nerveux au diaphragme et aux muscles intercostaux. L'étape suivante dans la respiration est que

A. la pression de l'air alvéolaire augmente et l'air entre
B. la pression de l'air alvéolaire diminue et l'air sort
C. la cage thoracique se soulève et s'écarte, et le diaphragme se gonfle vers le haut
D. la cage thoracique se soulève et s'écarte, et le diaphragme retombe

Utilisez le diagramme suivant pour répondre à la question 31.

Représentation d'événements dans les tissus glandulaires



31. Le croquis représente la diffusion

A. des substances nutritives représentées par R et des déchets représentés par S
B. de l'oxygène représenté par R et du dioxyde de carbone représenté par S
C. de l'oxygène représenté par S et du dioxyde de carbone représenté par R
D. de l'oxyhémoglobine représentée par R et des ions bicarbonate représentés par S

Utilisez l'information suivante pour répondre à la question 32.

Un athlète qui s'entraîne au niveau de la mer peut courir 1500 m en quatre minutes. Cette personne va à haute altitude, continue à s'entraîner pendant environ 60 jours et revient ensuite au niveau de la mer.

32. Après son retour au niveau de la mer, l'athlète courrait probablement 1500 m en

A. moins de quatre minutes à cause d'une diminution de la numération d'érythrocytes

B. moins de quatre minutes à cause d'une augmentation de la numération d'érythrocytes

C. plus de quatre minutes à cause d'une diminution de la numération d'érythrocytes

D. plus de quatre minutes à cause d'une augmentation de la numération d'érythrocytes

---

Utilisez le tableau suivant pour répondre à la question 33.

Composition de l'air inhalé et exhalé pour le sujet X

| Composant | Pourcentage par volume | |
|---|---|---|
| | Air inhalé | Air exhalé |
| Azote et gaz inertes | 78,62 | 74,90 |
| Oxygène | 20,85 | 15,30 |
| Dioxyde de carbone | 0,03 | 3,60 |
| Vapeur d'eau | 0,50 | 6,20 |
| TOTAL | 100,00 | 100,00 |

33. Il serait raisonnable de conclure que, pour le sujet X,

A. l'organisme emploie plus d'azote que d'oxygène

B. l'oxygène est converti en dioxyde de carbone dans les alvéoles pulmonaires

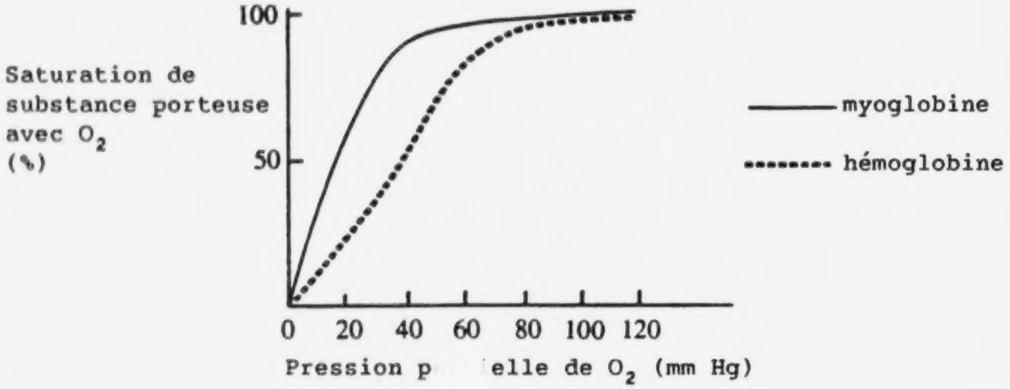
C. l'oxygène et l'azote sont essentiels à la respiration cellulaire

D. le dioxyde de carbone et la vapeur d'eau sont excrétées par les poumons

---

Utilisez l'information suivante pour répondre à la question 34.

La myoglobine se trouve dans le muscle; l'hémoglobine est dans les globules rouges. Le graphique montre la capacité de chaque protéine à porter $O_2$ (à être "saturée d'oxygène") dans divers environnements qui diffèrent par leur contenu en $O_2$. Les deux courbes sont pour des protéines isolées chez des humains adultes.



34. Une bonne interprétation du graphique est que

A. à 60 mm Hg de pression partielle de $O_2$, aucune des deux protéines ne porte assez de $O_2$ pour compter pour un organisme

B. l'hémoglobine peut libérer $O_2$ quand c'est dans un environnement avec peu de $O_2$ mais la myoglobine ne peut pas

C. la myoglobine accepte $O_2$ dans un environnement pauvre en oxygène plus facilement que l'hémoglobine

D. la myoglobine libère $O_2$ dans un environnement riche en oxygène plus facilement que l'hémoglobine

35. La respiration anaérobie

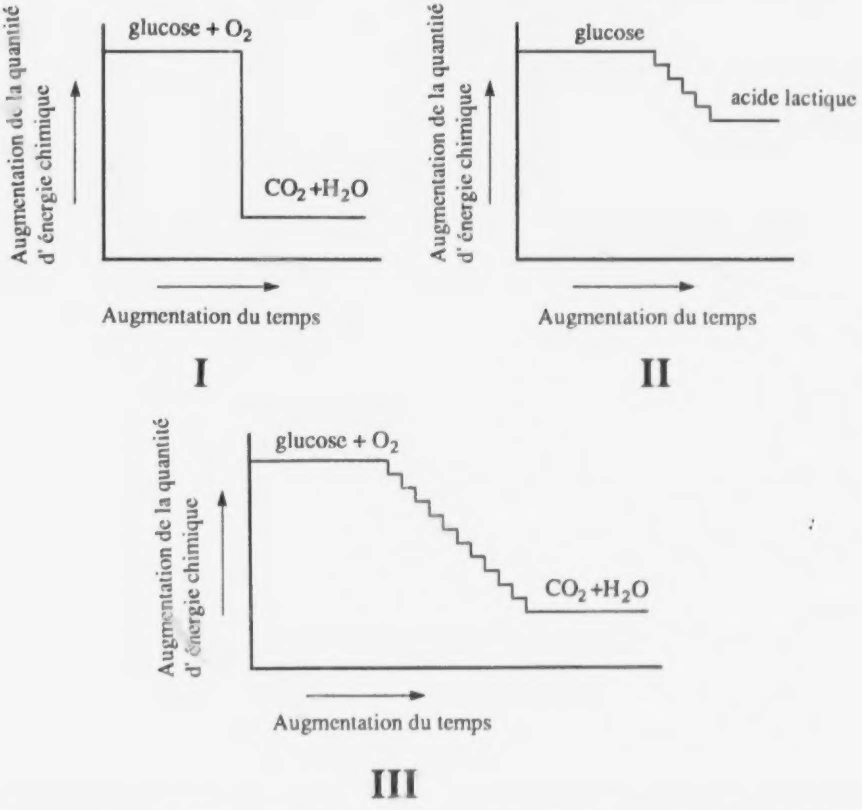
A. utilise l'acide lactique comme combustible
B. se fait en l'absence de $O_2$
C. emploie $H_2O$ comme accepteur temporaire d'hydrogène
D. aboutit à la production de grandes quantités d'ATP

36. Une personne trop grosse entre à l'hôpital pour un temps assez long pour perdre du poids. Le contenu calorique du régime de la personne est considérablement réduit. En même temps, cette ration calorique basse est complétée par l'énergie accumulée dans l'organisme. L'énergie accumulée vient principalement des

A. aminoacides et des vitamines
B. minéraux et des vitamines
C. féculents
D. graisses

Utilisez les graphiques suivants pour répondre à la question 37.

Trois graphiques hypothétiques de la décomposition du glucose

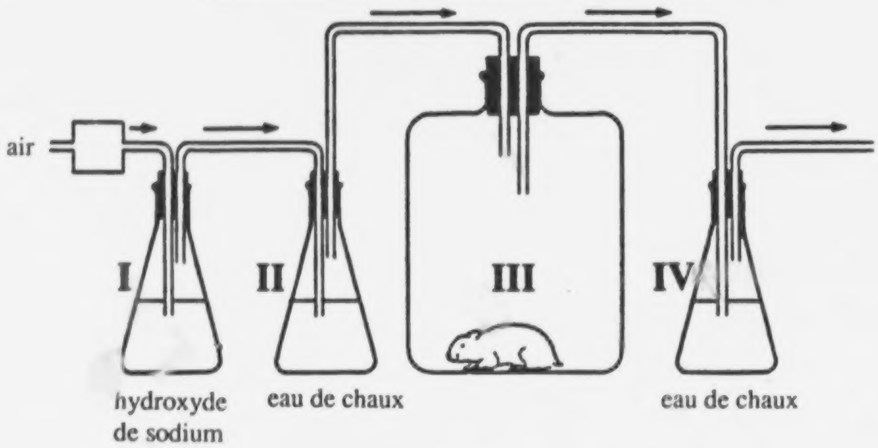


37. Les graphiques qui illustrent la combustion et la respiration aérobie sont respectivement

A. I et II
B. I et III
C. II et III
D. III et II

Utilisez le croquis suivant pour répondre aux questions 38 et 39.

**Expérience de respiration cellulaire**



Note: L'hydroxyde de sodium absorbe $CO_2$.
L'eau de chaux passe de claire à laiteuse quand elle réagit avec $CO_2$.

38. L'emploi des flacons I et II dans l'expérience permet au chercheur d'établir avec un certain degré de certitude que

A. l'eau de chaux dans le flacon IV devient laiteuse à cause de la production de $CO_2$ pendant la respiration cellulaire chez l'animal

B. le gaz produit par l'animal provient de la décomposition du glucose dans la respiration cellulaire

C. l'oxygène est nécessaire pour que l'animal poursuive la respiration cellulaire

D. le $CO_2$ stimule le processus de la respiration cellulaire chez l'animal

39. L'expérience est conçue pour vérifier si les animaux, pendant la respiration cellulaire,

A. ont besoin d'oxygène
B. oxydent le glucose
C. produisent de la vapeur d'eau
D. produisent du dioxyde de carbone

---

40. Quel est le trajet que suit l'urine depuis sa formation dans les néphrons jusqu'à sa sortie du corps?

A. Canal collecteur → uretère → vessie → urètre
B. Canal collecteur → urètre → vessie → uretère
C. Vessie → canal collecteur → uretère → urètre
D. Vessie → urètre → canal collecteur → uretère

41. Les tubules du néphron aident à maintenir l'homéostasie dans l'organisme en

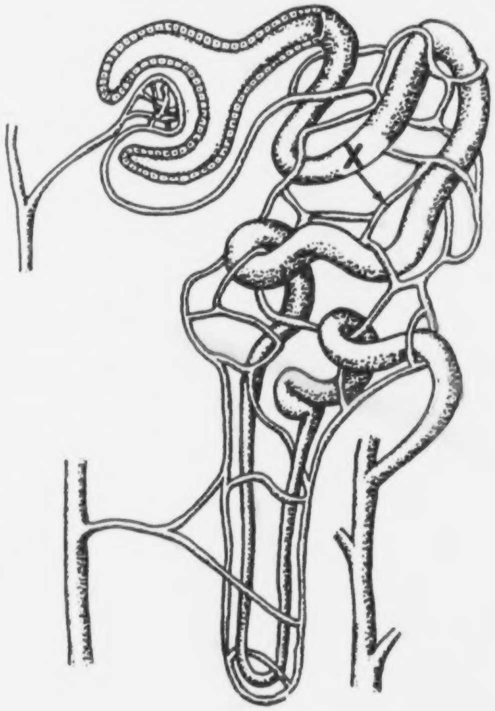
A. formant l'urée
B. enlevant les aminoacides
C. ramassant les protéines filtrées
D. rapportant les matières au sang

42. Un composant du sang qui **n'entre pas** normalement dans le filtrat néphrique est

A. l'urée
B. les protéines
C. le glucose
D. les ions sodium

Utilisez le diagramme suivant pour répondre à la question 43.

Néphrons humain et vaisseaux sanguins associés



43. La substance X, dont le trajet est indiqué par la flèche, est **le mieux** décrite comme

A. l'eau qui est réabsorbée à cause d'un gradient osmotique
B. le glucose qui est filtré à cause de la pression sanguine
C. les aminoacides qui sont excrétés à cause de la diffusion
D. les ions sodium qui sont réabsorbés par osmose

44. Une hémorragie (perte de sang) aboutit à une diminution de la production d'urine en

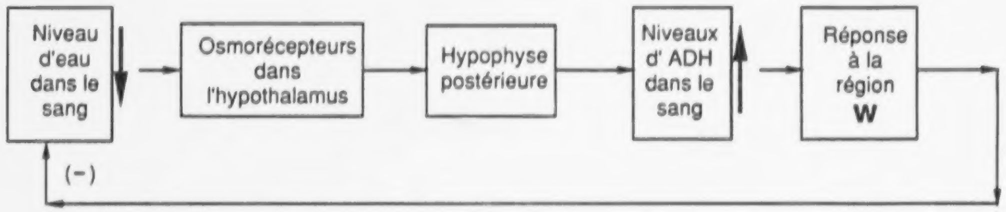
A. dilatant les vaisseaux sanguins
B. faisant tomber la pression sanguine
C. augmentant la quantité de filtrat
D. augmentant la pression osmotique du plasma

45. En réponse à une pression sanguine faible, le rein produit une substance M, qui à son tour fait produire la substance N par le cortex surrénal. La présence de la substance N aboutit à la réabsorption de la substance Q et de l'eau dans le sang. La réabsorption d'eau compense la faible pression sanguine. La substance Q est fort probablement

A. l'ADH
B. l'adrénaline
C. l'aldostérone
D. des ions sodium

Utilisez l'information suivante pour répondre à la question 46.

Système de rétroaction pour contrôler les niveaux d'eau dans le sang


Niveau d'eau dans le sang
Osmorécepteurs dans l'hypothalamus
Hypophyse postérieure
Niveaux d' ADH dans le sang
Réponse à la région W
(-)

46. La réponse à la région W est obtenue en

A. augmentant la perméabilité des tubules proximaux
B. diminuant la perméabilité des tubules proximaux
C. augmentant la perméabilité des tubules distaux et des canaux collecteurs
D. diminuant la perméabilité des tubules distaux et des canaux collecteurs

47. À mesure que la concentration de glucose dans le sang monte après un repas, la concentration de glycogène du foie

A. commence à tomber
B. commence à monter
C. n'est que légèrement atteinte
D. change conformément à la production d'urée

48. Une fonction de l'adrénaline est de régler la conversion

A. des acides gras et du glycérol en graisses
B. des aminoacides en urée et graisse
C. du glucose en glycogène
D. du glycogène en glucose

Utilisez le tableau suivant pour répondre à la question 49.

Âge et pouvoir accommodateur de l'oeil

| Âge en années | Accommodation à proximité* (cm) |
|---|---|
| 10 | 7,5 |
| 20 | 10,0 |
| 30 | 11,5 |
| 40 | 17,2 |
| 50 | 65,9 |
| 60 | 90,0 |

*La plus courte distance entre l'oeil et un objet, à laquelle on peut encore mettre au point sur l'objet.

49. La perte de l'accommodation à proximité avec l'âge est le plus **probablement** due à

A. la perte de souplesse du cristallin
B. la courbure inégale de la cornée
C. la perte de photosensibilité des bâtonnets et des cônes
D. l'incapacité de l'iris de s'ajuster aux changements de luminosité

Utilisez l'information suivante pour répondre à la question 50.

**Exemples de régulation hormonale**

I. ADH sécrétée à cause du sang hypertonique
II. TSH sécrétée à cause du faible taux de métabolisme
III. Oxytocine sécrétée à cause de l'extension du col de l'utérus pendant le travail
IV. Insuline sécrétée à cause de l'absorption de glucose par l'intestin
V. Oestrogène et progestérone ingérés pour empêcher l'ovulation

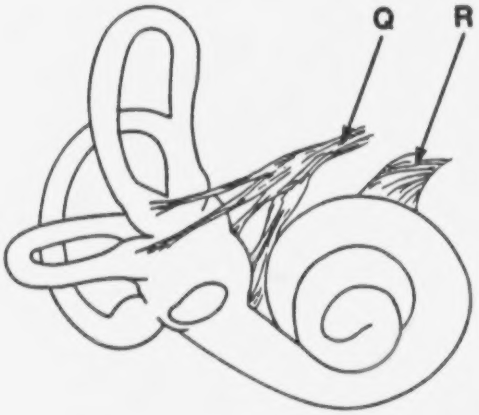
50. Quels énoncés décrivent les réponses homéostatiques?

A. I, II et IV
B. I, III et V
C. II et IV
D. III et V

---

Utilisez le diagramme suivant pour répondre à la question 51.

Oreille interne humaine



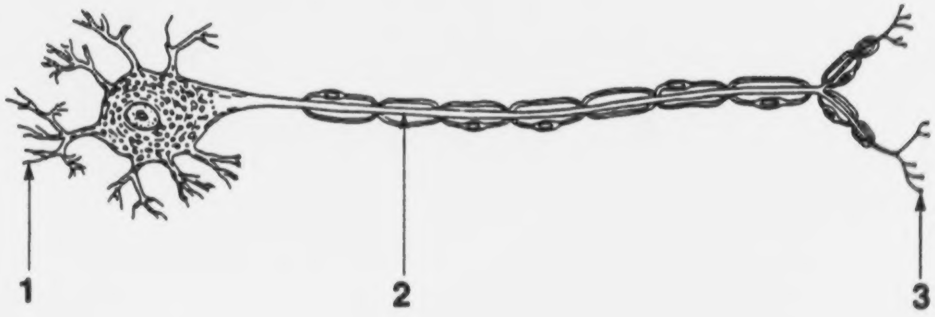
Note: Q et R sont des nerfs sensoriels.

51. Quelle description des nerfs sensoriels de l'oreille interne est juste?

A. Q porte les influx venant des récepteurs de messages chimiques
B. R porte les influx venant des récepteurs de son
C. Q porte les influx venant des récepteurs de son
D. R porte les influx venant des récepteurs de mouvement

Utilisez le croquis suivant pour répondre à la question 52.

Structure d'un neurone



52. Si le neurone était stimulé en 2, l'influx se déplacerait vers

   A. le point 1, où se fait la transmission synaptique
   B. le point 3, où aucune transmission synaptique ne se fait
   C. les points 1 et 3, causant la transmission synaptique en 3 seulement
   D. les points 1 et 3, causant la transmission synaptique à chaque extrémité

53. La plupart des expériences conscientes de l'environnement externe sont déclenchées par des influx venant des

   A. effecteurs moteurs
   B. récepteurs sensoriels
   C. neurones d'association
   D. nerfs sympathiques autonomes

54. Le principe du tout ou rien de l'action des nerfs se réfère à l'état dans lequel

   A. un stimulus dépolarise tous les neurones dans un nerf ou aucun neurone

   B. un stimulus active chaque nerf dans l'organisme ou aucun des nerfs

   C. un stimulus active une cellule nerveuse pour qu'elle fonctionne à plein ou qu'elle ne fonctionne pas du tout

   D. tous les stimuli atteignant des cellules nerveuses les activent; donc aucun stimulus ne passe inaperçu

55. Le trajet nerveux des influx dans une réponse réflexe est

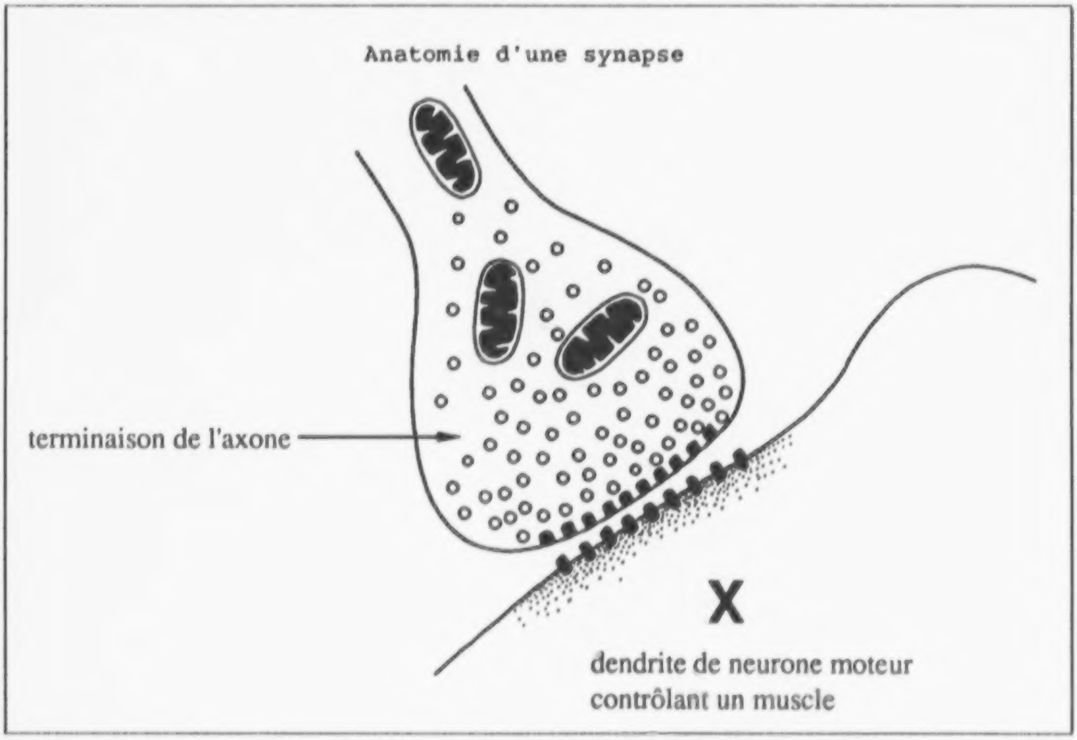
A. neurone moteur → interneurone → neurone sensoriel → récepteur sensoriel

B. neurone sensoriel → récepteur sensoriel → interneurone → neurone moteur

C. récepteur sensoriel → neurone sensoriel → interneurone → neurone moteur

D. récepteur sensoriel → interneurone → neurone moteur → neurone sensoriel

Utilisez le diagramme suivant pour répondre à la question 56.


Anatomie d'une synapse
terminaison de l'axone
X
dendrite de neurone moteur contrôlant un muscle

56. On a introduit une drogue dans la synapse liée seulement aux structures X du neurone moteur, empêchant ainsi un fonctionnement normal. On pourrait s'attendre à ce que

A. la paralysie du muscle se produise
B. le muscle reste contracté
C. le neurotransmetteur ne soit pas élaboré
D. les sensations prenant naissance dans le muscle soient perdues

57. Un influx passe d'un neurone au neurone adjacent par

A. les axones d'un neurone qui touchent les terminaisons de l'axone du neurone adjacent

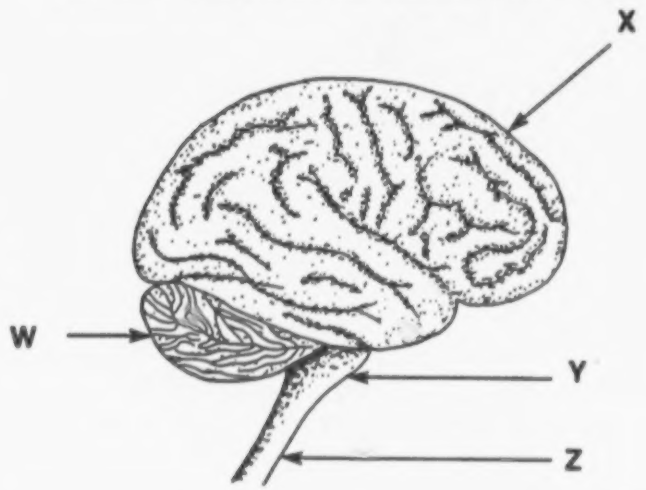
B. les dendrites d'un neurone qui touchent les terminaisons de l'axone du neurone adjacent

C. un transmetteur chimique libéré par les dendrites d'un neurone et stimulant les terminaisons de l'axone du neurone adjacent

D. un transmetteur chimique libéré par les terminaisons de l'axone d'un neurone et stimulant les dendrites du neurone adjacent

Utilisez le croquis suivant pour répondre à la question 58.

Portion du système nerveux central humain



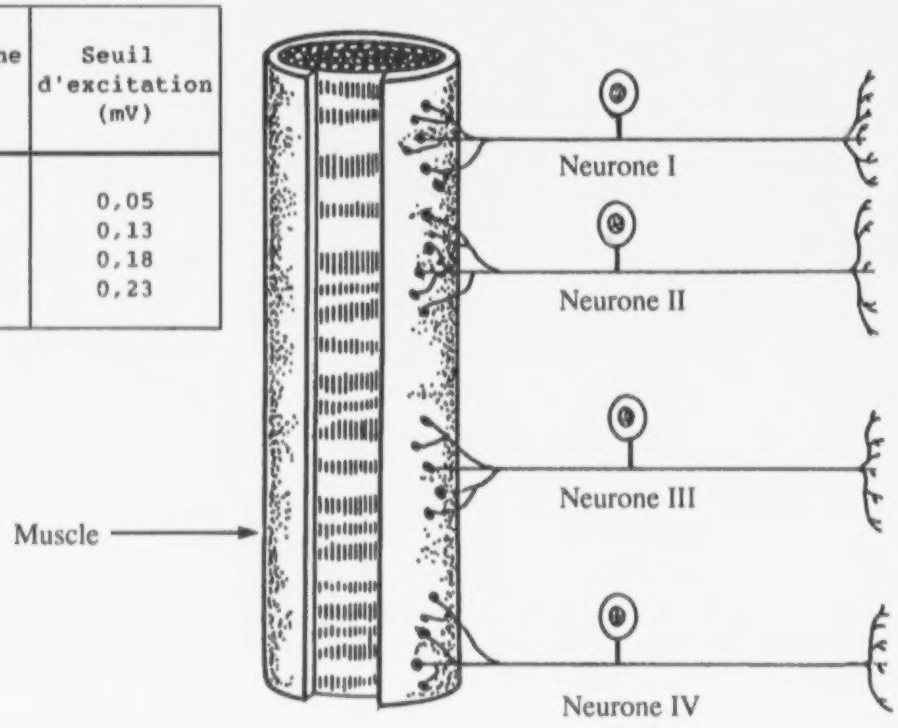
58. La coordination physique et les activités mentales supérieures comme la parole et l'ouïe sont contrôlées par les structures

A. W et X
B. X et Y
C. Y et W
D. Z et X

Utilisez l'information suivante pour répondre à la question 59.

Niveaux de seuil de quatre neurones

| Neurone | Seuil d'excitation (mV) |
|---|---|
| I | 0,05 |
| II | 0,13 |
| III | 0,18 |
| IV | 0,23 |

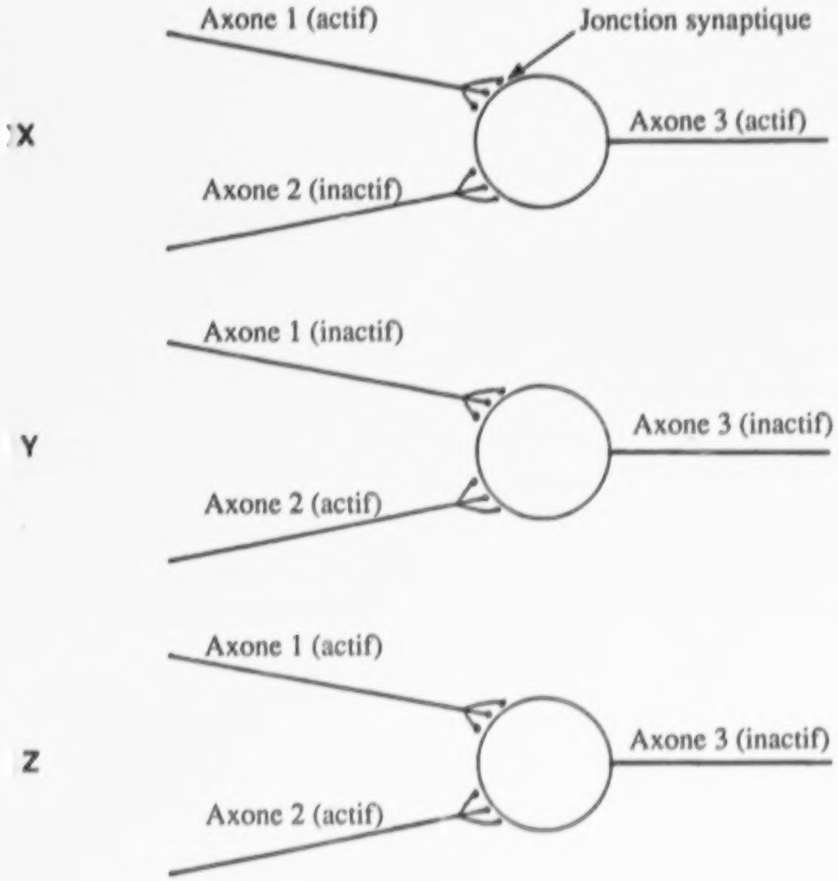

Neurone I
Neurone II
Neurone III
Muscle
Neurone IV

59. Dans une expérience, on a stimulé chacun des neurones avec un courant électrique. Le stimulus qui créerait un influx **à la fois** dans le neurone I et le neurone II, mais **ni** dans le neurone III **ni** dans le neurone IV, serait de

A. 0,09 mV
B. 0,15 mV
C. 0,18 mV
D. 0,22 mV

Utilisez les diagrammes suivants pour répondre à la question 60.

Trois schémas possibles de contrôle synaptique (X, Y et Z)


Axone 1 (actif)
Jonction synaptique
X
Axone 3 (actif)
Axone 2 (inactif)
Axone 1 (inactif)
Y
Axone 3 (inactif)
Axone 2 (actif)
Axone 1 (actif)
Z
Axone 3 (inactif)
Axone 2 (actif)

Note: "Actif" signifie que le neurone transmet les influx.
"Inactif" signifie que le neurone ne transmet pas les influx.

60. Si les axones 1 et 2 étaient activés en même temps, l'interprétation la plus probable du Diagramme Z serait que

A. l'Axone 1 inhiberait l'effet de l'Axone 2
B. l'Axone 2 inhiberait l'effet de l'Axone 1
C. l'Axone 3 serait seulement affecté par l'Axone 1
D. l'Axone 3 augmenterait l'effet de l'Axone 2

61. Puisque la contraction musculaire nécessite de grandes quantités d'ATP,

A. les ribosomes se trouvent en grands nombres dans les fibrilles des muscles
B. les cellules qui produisent l'énergie sont situées près des muscles
C. on trouve les mitochondries dans les fibrilles des muscles
D. les nerfs doivent délivrer l'ATP au muscle

62. La force contractile d'un muscle est déterminée par

A. le potentiel d'action à la jonction neuromusculaire
B. la quantité de transmetteur sécrétée
C. le potentiel de seuil de la fibre musculaire
D. le nombre d'unités motrices stimulées

Utilisez l'information suivante pour répondre à la question 63.

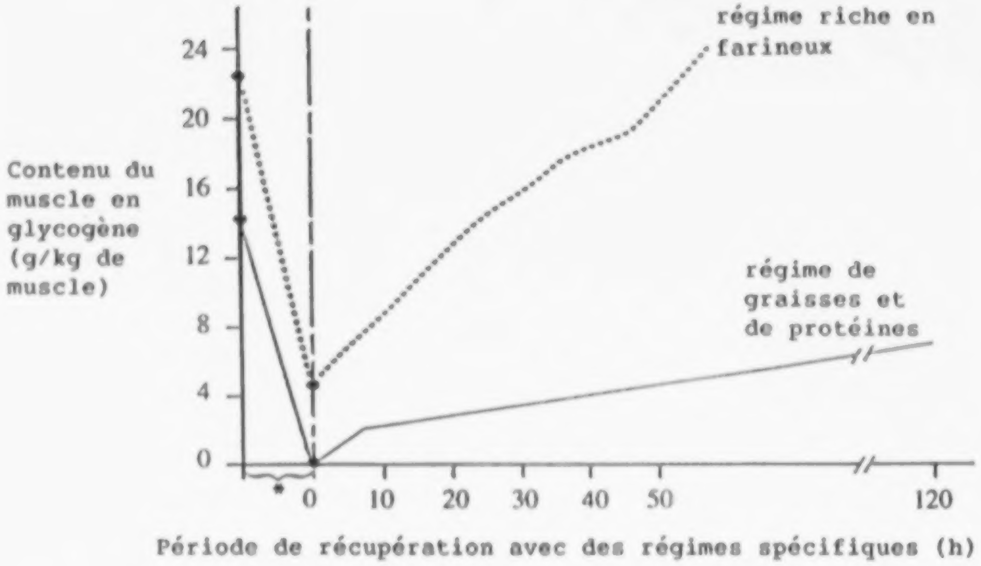
Quelques caractéristiques des muscles lisses et squelettiques

I. Le muscle a la forme de longues fibres.
II. Les fibres montrent une striation.
III. Les fibres ne montrent pas de striation.
IV. Le muscle est à contraction involontaire.
V. Le muscle est à contraction volontaire.
VI. Les cellules individuelles ne sont pas visibles.
VII. Les cellules sont disposées en couches.
VIII. Les cellules individuelles se voient facilement.

63. Les traits principaux des muscles squelettiques sont le mieux décrits par les énoncés

A. I, II, V et VI
B. I, II, VI et VII
C. I, V, VII et VIII
D. III, IV, VII et VIII

**Utilisez le graphique suivant pour répondre à la question 64.**



**Effet d'un régime sur le taux de réapprovisionnement du muscle en glycogène à la suite d'exercice prolongé**

*2 h d'exercice prolongé (pas à l'échelle). Aucun aliment n'a été consommé pendant ces 2 heures.

64. Les athlètes qui consomment des aliments riches en amidons à la suite d'exercice prolongé réapprovisionnent leurs réserves d'énergie en environ

A. 5 h
B. 15 h
C. 50 h
D. 120 h

---

65. Une structure chez l'homme qui remplit une fonction importante dans l'excrétion et la reproduction est

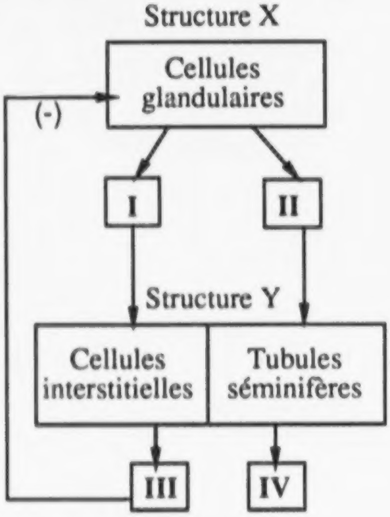
A. l'uretère
B. l'urètre
C. le canal déférent
D. la prostate

66. Chez l'homme, le sperme viable ne peut pas être produit si

A. les glandes de Cowper sont inactives
B. la prostate a été enlevée
C. les canaux déférents ont été coupés
D. les testicules ne sont pas descendus dans les bourses

Utilisez le tableau suivant pour répondre à la question 67.

Régulation des hormones reproductrices



67. Les produits représentés par les numéros I, II, III et IV sont respectivement

A. ICSH (LH), FSH, sperme et testostérone
B. FSH, ICSH (LH), testostérone et sperme
C. ICSH (LH), FSH, testostérone et sperme
D. FSH, ICSH (LH), sperme et testostérone

68. Une lésion de l'hypophyse chez une femme juste avant la puberté peut avoir pour résultat

A. une réduction de la production d'oestrogène et l'inhibition du développement des caractères sexuels secondaires

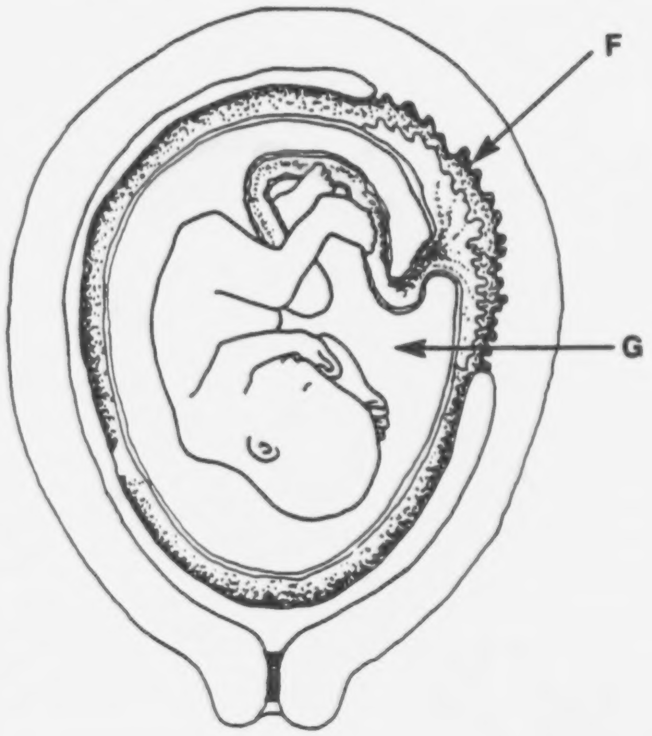
B. une réduction de la production d'oestrogène et la stimulation du développement des caractères sexuels secondaires

C. une augmentation de la production de progestérone et l'inhibition du développement des caractères sexuels secondaires

D. une augmentation de la production de progestérone et la stimulation du développement des caractères sexuels secondaires

Utilisez le croquis suivant pour répondre aux questions 69 et 70.

Rapport entre les membranes extra-embryonnaires et le foetus



69. Quelle hormone est responsable du maintien du tissu légendé F?

A. FSH
B. Oxytocine
C. Aldostérone
D. Progestérone

70. Laquelle des fonctions **n'appartient pas** à la région légendée G?

A. Protège le foetus d'une lésion mécanique
B. Fournit un poumon primitif pour les échanges gazeux
C. Fournit un environnement liquide pour la croissance du foetus
D. Protège le foetus contre les changements subits de température

---

**VOUS AVEZ MAINTENANT FINI LA PARTIE DES QUESTIONS À CHOIX MULTIPLES DE L'EXAMEN. PASSEZ DIRECTEMENT À LA PARTIE B.**

## PARTIE B

**INSTRUCTIONS**

Dans cette partie de l'examen, il y a sept questions écrites pour un total de 30 points.

Lisez attentivement chaque question. Écrivez vos réponses dans le livret d'examen aussi clairement que possible.

Communiquez vos réponses en phrases claires et concises. Les points seront donnés pour les explications et les réponses pertinentes. À la question 5, deux points sont donnés pour les habiletés de communication écrite.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

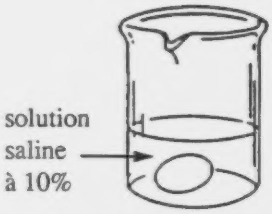
COMMENCEZ IMMÉDIATEMENT LA PARTIE B.

Utilisez l'information suivante pour répondre à la question 1.

### Étude des processus cellulaires

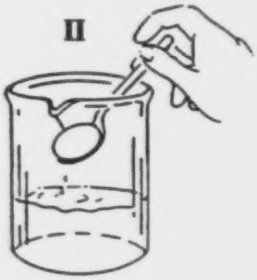
On a enlevé la coquille d'un oeuf de poule frais en la dissolvant dans certains produits chimiques. Le blanc d'oeuf et le jaune, entourés de membranes molles, sont restés intacts. On a déterminé la masse de l'oeuf sans sa coquille. On a ensuite suivi les étapes I à VI, comme ci-dessous. Après avoir immergé l'oeuf dans l'eau distillée (étape VI) pendant 16 minutes, on a répété les étapes II à V. On a observé que la masse de l'oeuf était différente pour chacune des trois mesures.

I



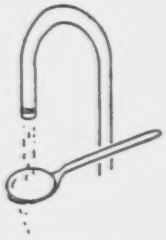
immerger l'oeuf
pendant 8 minutes

II



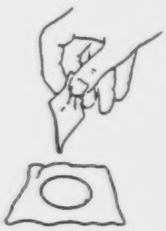
retirer l'oeuf
avec une cuillère

III



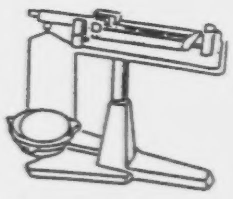
rincer l'oeuf

IV



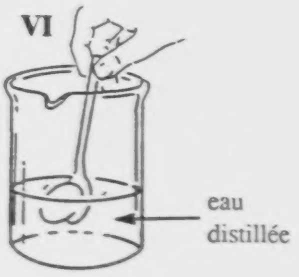
sécher l'oeuf

V



déterminer la masse

VI



immerger l'oeuf
pendant 16 minutes

**Note:** Supposez que l'oeuf est une seule cellule avec une concentration saline de 0,9%.

À L'USAGE
EXCLUSIF
DU SERVICE

(5 points)

1. a. Par rapport à la masse de l'oeuf sans coquille, non traité, prédisez comment la masse de l'oeuf changerait après le premier traitement (étape I). Expliquez pourquoi ce changement se produirait.

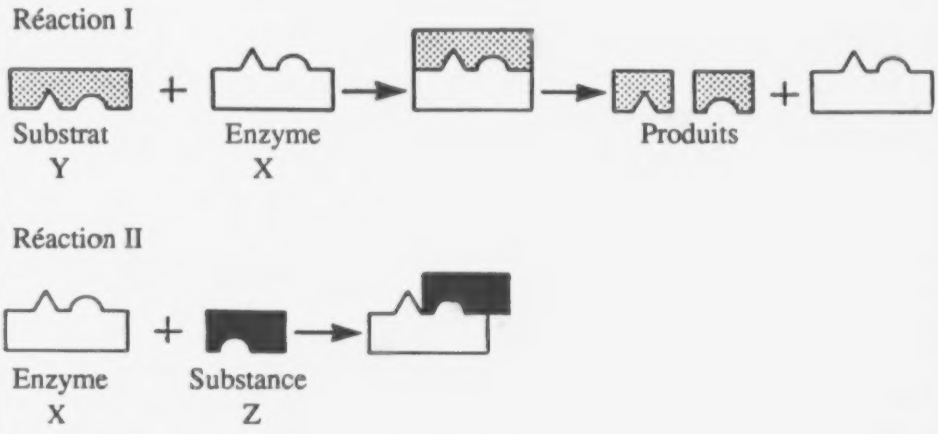
   b. Par rapport à la masse de l'oeuf sans coquille, non traité, prédisez comment la masse de l'oeuf changerait après le second traitement (étape VI). Expliquez pourquoi ce changement se produirait.

   c. Expliquez pourquoi les étapes III et IV sont nécessaires à cette étude.

À L'USAGE
EXCLUSIF
DU SERVICE

Utilisez l'information suivante pour répondre à la question 2.

Réactions enzyme-substrat dans des cellules bactériennes


Réaction I
Substrat
Y
Enzyme
X
Produits
Réaction II
Enzyme
X
Substance
Z

(3 points) 2. a. Si la Substance Z était introduite dans la Réaction I, comment la réaction en serait-elle affectée?

b. Si la Substance Z était un antibiotique, expliquez comment elle serait utile pour contrôler la croissance des bactéries.

À L'USAGE
EXCLUSIF
DU SERVICE

3. Choisissez **trois** systèmes ou appareils de l'organisme qui seraient affectés par une insuffisance de calcium due au régime. Identifiez un effet d'une telle carence sur chaque système/appareil. (3 points)

Système/appareil 1 ____________________

____________________

____________________

Système/appareil 2 ____________________

____________________

____________________

Système/appareil 3 ____________________

____________________

____________________

4. Dans un rein artificiel, le sang traverse de très petits canaux entourés de fines membranes poreuses. Les canaux membraneux ainsi que le sang sont suspendus dans un liquide de dialyse. Décrivez le principe essentiel sur lequel est basé le transfert des solutés du sang dans le liquide de dialyse. Identifiez deux conditions possibles qui contrôlent la quantité de substances transférées (retirées). (3 points)

____________________

____________________

____________________

____________________

____________________

____________________

____________________

____________________

À L'USAGE
EXCLUSIF
DU SERVICE

(6 points)

5. Après une coupure grave, les symptômes d'un patient ont été notés comme suit:

I. pouls faible
II. pouls rapide
III. baisse de la température du corps
IV. coloration légèrement bleutée ou violacée des bouts de doigt

Expliquez comment la perte de sang a causé chacun des symptômes ci-dessus.

(Quatre points seront donnés pour les concepts et deux points pour la preuve d'une pensée logique exprimée en utilisant le vocabulaire approprié.)

À L'USAGE
EXCLUSIF
DU SERVICE

(6 points)

6. Un marcheur est effrayé par la vue d'un ours. En réponse, le système nerveux autonome prépare le corps du marcheur en vue de réactions appropriées. Choisissez un organe de chacun des systèmes/appareils énumérés et décrivez les changements que l'organe subit. Expliquez comment chacun des changements aide le marcheur à faire face aux urgences.

a. Appareil circulatoire

______________________________

______________________________

______________________________

______________________________

______________________________

b. Système endocrinien

______________________________

______________________________

______________________________

______________________________

______________________________

c. Appareil digestif

______________________________

______________________________

______________________________

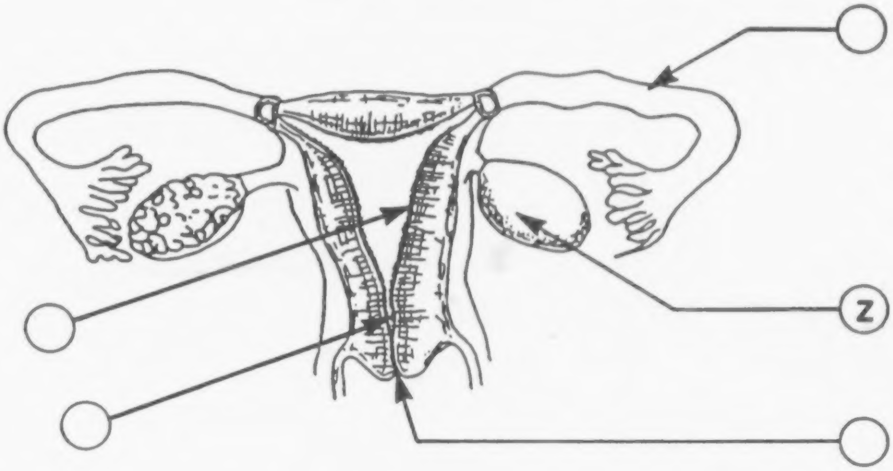
______________________________

______________________________

À L'USAGE
EXCLUSIF
DU SERVICE

Légendez ce diagramme comme le demande la question 7.

Appareil reproducteur féminin



(4 points)

7. a. Sur le diagramme ci-dessus, indiquez:

- le site habituel de la fécondation, en mettant un X dans le cercle de la flèche désignant la bonne structure
- la région habituelle de l'implantation, en mettant un Y dans le cercle de la flèche désignant la bonne structure

b. Expliquez quel effet la FSH et la LH auraient sur l'organe Z.

(i) FSH ______________________________

______________________________

______________________________

(ii) LH ______________________________

______________________________

______________________________

VOUS AVEZ MAINTENANT FINI L'EXAMEN. SI VOUS AVEZ DU TEMPS, VOUS VOUDREZ PEUT-ÊTRE RELIRE POUR VÉRIFIER VOS RÉPONSES.

FEUILLE À
DÉTACHER

(ON NE DONNERA PAS DE POINTS POUR LE TRAVAIL FAIT SUR CETTE PAGE)

PLIER ET DÉTACHER LE LONG DE LA PERFORATION

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☐ M1 ☐ M2 ☐ M3 ☐ M4

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BIOLOGIE 30

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BIOLOGIE 30

# GRADE 12
# DIPLOMA EXAMINATION

## Chemistry 30

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# CHEMISTRY 30

## DESCRIPTION

Time: 2½ hours

Total possible marks: 70

This is a **closed-book** examination consisting of **three** parts:

PART A has 49 multiple-choice questions each with a value of one mark.

PART B has seven machine-scorable open-ended questions each with a value of one mark.

PART C has three written-response questions for a total of 14 marks.

A chemistry data booklet is provided for your reference.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

## GENERAL INSTRUCTIONS

Fill in the information required on the answer sheet and the examination booklet as directed by the examiner.

You are expected to provide your own approved scientific calculator.

Carefully read the instructions for each part before proceeding.

**DO NOT FOLD EITHER THE ANSWER SHEET OR THE EXAMINATION BOOKLET.**

The presiding examiner will collect your answer sheet and examination booklet and send them to Alberta Education.

**JANUARY 1990**

# PART A

## INSTRUCTIONS

In this part of the examination, there are 49 multiple-choice questions each with a value of one mark. All numbers used in the questions are to be considered as the result of a measurement.

Read each question carefully and decide which of the choices **best** completes the statement or answers the question. Locate that question number on the separate answer sheet provided and fill in the space that corresponds to your choice. **Use an HB pencil only.**

**Example** | **Answer Sheet**

This diploma examination is for the subject area of

**A.** Biology
**B.** Physics
**C.** Chemistry
**D.** Mathematics

| A | B | C | D |
|---|---|---|---|
| ① | ② | ● | ④ |

If you wish to change an answer, erase your first mark completely.

> NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

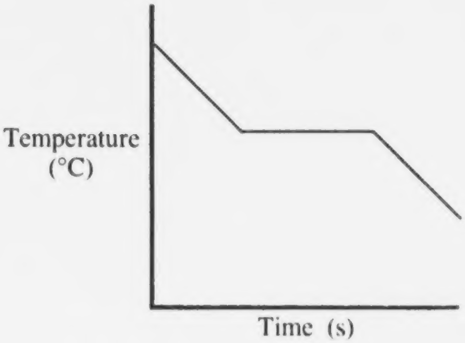
**DO NOT TURN THE PAGE TO START THE EXAMINATION UNTIL TOLD TO DO SO BY THE PRESIDING EXAMINER.**

1. If during an energy change, the heat content of the products is different from that of the reactants but no new substance is formed, the change is most likely a

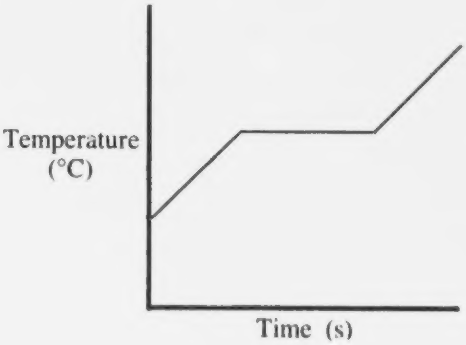
   **A.** chemical change or a phase change
   **B.** nuclear change or a chemical change
   **C.** phase change or a temperature change
   **D.** nuclear change or a temperature change

2. Water at 25.0°C is heated and vaporizes to steam at 150.0°C. Which diagram illustrates the enthalpy changes that occur?

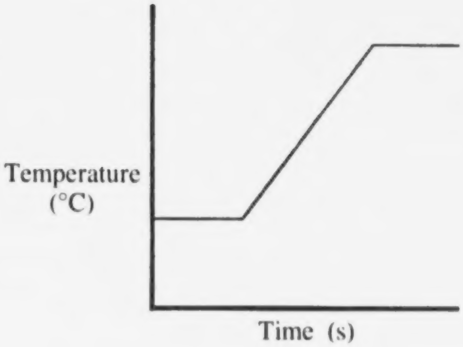
**A.**



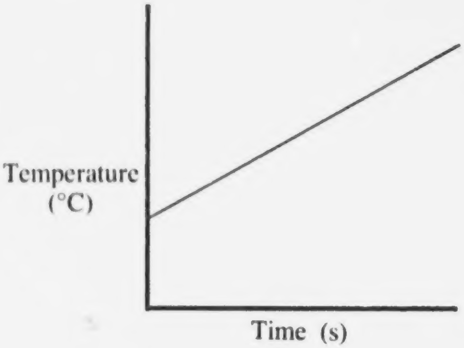
**B.**



**C.**



**D.**



3. 0.250 mol of element X is burned in oxygen to produce 0.250 mol of the corresponding oxide. The temperature of 200.0 g of the surrounding water rises 15.0°C. The molar heat of formation for the compound is

   **A.** − 1.26 kJ/mol
   **B.** − 3.15 kJ/mol
   **C.** − 12.6 kJ/mol
   **D.** − 50.3 kJ/mol

**4.** Which of these compounds is the most stable?

**A.** $H_2O(l)$
**B.** $NO_2(g)$
**C.** $C_2H_4(g)$
**D.** $Al_2O_3(s)$

**Use the following information to answer question 5.**

I. $2CH_4(g) + O_2(g) \rightarrow 2CH_3OH(g) + 385.8\ kJ$
II. $2NH_3(g) + 92.4\ kJ \rightarrow N_2(g) + 3H_2(g)$
III. $2NO(g) + O_2(g) \rightarrow 2NO_2(g)$ $\Delta H = -113.2\ kJ$
IV. $C_2H_6(g) \rightarrow C_2H_4(g) + H_2(g)$ $\Delta H = +137.0\ kJ$

**5.** The two endothermic reactions are

**A.** I and II
**B.** I and IV
**C.** II and IV
**D.** II and III

---

**Use the following information to answer question 6.**

A statement and an explanation are given for this reaction:

$$C_5H_{12}(l) + 8O_2(g) \rightarrow 5CO_2(g) + 6H_2O(g)$$

| Statement | Explanation |
|---|---|
| The reaction is exothermic. | The heat content of the products is less than that of the reactants. |

**6.** Based on the reaction, one should conclude that

**A.** both the statement and the explanation are true, and the explanation is correct for the statement

**B.** both the statement and the explanation are true, but the explanation is not correct for the statement

**C.** the statement is true, but the explanation is false

**D.** the statement is false, but the explanation is true

**7.** The best interpretation that a student can make when a liquid turns to vapor at its boiling point is that the

**A.** potential energy of the molecules increases
**B.** bonds within the molecules are rearranged
**C.** kinetic energy of the molecules decreases
**D.** temperature of the system rises

**Use the following information to answer question 8.**

I. $2K(s) + 2H_2O(l) \longrightarrow 2KOH(aq) + H_2(g)$

II. $Fe(l) \longrightarrow Fe(s)$

III. $2\,^{3}_{2}He \longrightarrow \,^{4}_{2}He + 2\,^{1}_{1}H$

IV. $2CH_3OH(l) + 3O_2(g) \longrightarrow 2CO_2(g) + 4H_2O(g)$

**8.** Which reaction is expected to release the greatest amount of energy?

**A.** I
**B.** II
**C.** III
**D.** IV

---

**Use the following information to answer question 9.**

I. An element undergoes a chemical reaction.

II. An element undergoes an atomic number change.

III. An element undergoes two phase changes as temperature increases.

IV. An element undergoes a phase change with no change in temperature.

**9.** An observer can predict that

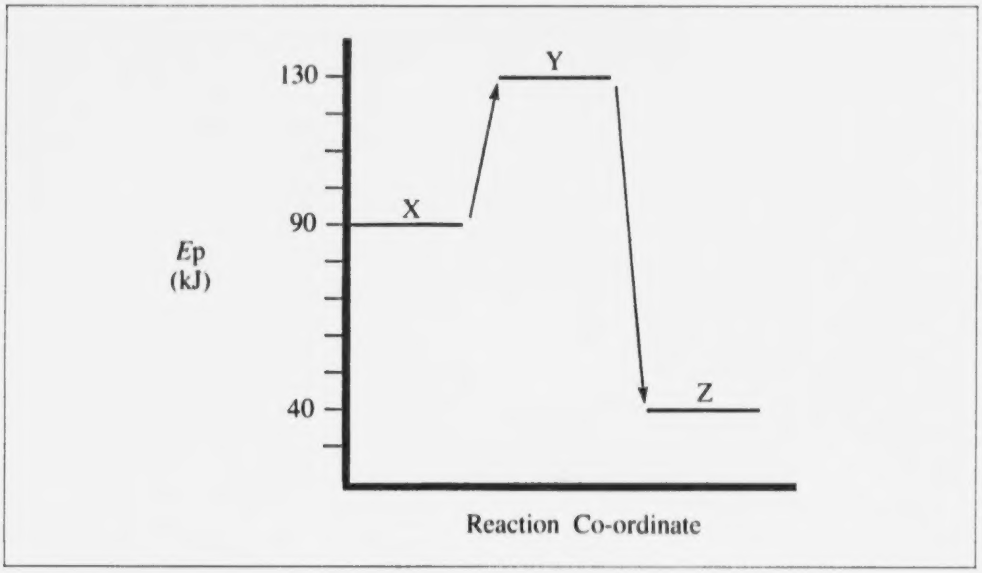
**A.** I, II, and III are examples of exothermic reactions
**B.** high energy change is associated with statement II
**C.** there is no energy change associated with statement IV
**D.** the relative order of energy change from highest to lowest is I, II, III, IV

---

**10.** For the reaction $CaCO_3(s) \longrightarrow CaO(s) + CO_2(g)$, predict the mass of CaO(s) produced when 712 kJ of energy are absorbed.

**A.** 4.00 g
**B.** 17.8 g
**C.** 62.8 g
**D.** 224 g

**Use the following diagram to answer question 11.**



**11.** The $\Delta H$ for the reaction $X \longrightarrow Z$ is

**A.** +130 kJ
**B.** +40 kJ
**C.** −50 kJ
**D.** −90 kJ

---

**12.** During the production of a small amount of material, there is a large decrease in the temperature of the water in the calorimeter. The $\Delta H$ for the reaction should be

**A.** large and positive
**B.** small and positive
**C.** small and negative
**D.** large and negative

**Use the following information to answer question 13.**

A student carried out this experiment:

- recorded the temperature of the water
- obtained 2.5 g of NaOH(s) pellets
- added the pellets to the water and stirred them until they dissolved
- observed an increase in the temperature of the water

**13.** Which statement could be proven using **only** the procedure outlined?

**A.** The heat of reaction of NaOH(s) with $H_2O(l)$ is 426.7 kJ/mol.
**B.** The solubility of NaOH(s) is affected by Δt of the water.
**C.** An exothermic reaction will occur when NaOH(s) is added to $H_2O(l)$.
**D.** Δt of the water will vary with an increase in the amount of NaOH(s) dissolved.

**Use the following data to answer question 14.**

$$N_2O_3(g) \longrightarrow NO(g) + NO_2(g) \qquad \Delta H = +40.2\ \text{kJ}$$

$$2NO_2(g) \longrightarrow N_2O_4(g) \qquad \Delta H = -23.4\ \text{kJ}$$

**14.** For the reaction $2NO(g) + N_2O_4(g) \longrightarrow 2N_2O_3(g)$, the $\Delta H$ is

**A.** −63.6 kJ
**B.** −57.0 kJ
**C.** −33.6 kJ
**D.** +16.8 kJ

**Use the following information to answer question 15.**

In an experiment, the same amount of heat was added to various masses of water having the same initial temperature. The final water temperatures were recorded.

**15.** If data from this experiment are plotted on a graph, which variable will be the dependent (responding) variable?

**A.** Mass of water
**B.** Final temperature
**C.** Initial temperature
**D.** Amount of heat

16. For the change $CS_2(g) \longrightarrow CS_2(l)$, $\Delta H = -27.44$ kJ. The heat released when 15.2 g of gaseous carbon disulphide are converted to the liquid state is

**A.** 417 kJ
**B.** 27.4 kJ
**C.** 5.48 kJ
**D.** 2.74 kJ

17. A solution conducts electricity well. It has no effect on red or blue litmus and does **not** react with magnesium metal. The solution could be

**A.** $HCl(aq)$
**B.** $NaOH(aq)$
**C.** $NaCl(aq)$
**D.** $C_2H_5OH(aq)$

**Use the following information to answer question 18.**

A student checked four solutions for conductivity and indicator properties, and tabulated the results:

| Solution | Conductivity | Bromothymol Blue |
|---|---|---|
| I | high | yellow |
| II | high | green |
| III | low | green |
| IV | high | blue |

18. The solution most likely to be $KNO_3(aq)$ is

**A.** I
**B.** II
**C.** III
**D.** IV

---

19. Which of the following represents a neutralization reaction?

**A.** $H_2SO_4(aq) \longrightarrow H^+(aq) + HSO_4^-(aq)$

**B.** $C_5H_{12}(l) + 8O_2(g) \longrightarrow 5CO_2(g) + 6H_2O(g)$

**C.** $NH_4OH(aq) + HClO_3(aq) \longrightarrow NH_4ClO_3(aq) + H_2O(l)$

**D.** $3BaCl_2(aq) + Al_2(SO_4)_3(aq) \longrightarrow 2AlCl_3(aq) + 3BaSO_4(s)$

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**20.** When compared with a weak acid, a stronger acid may be conceptually defined as one that

**A.** dissociates more in water to produce hydronium ions
**B.** conducts an electric current less readily
**C.** neutralizes bases more effectively
**D.** produces a more soluble salt

**21.** Two hypothetical ions, $Z^+(aq)$ and $Q^-(aq)$, form compounds ZOH(aq) and HQ(aq) by combining with hydroxide and hydrogen ions respectively. The Arrhenius base in the reaction between these compounds will be

**A.** ZQ(aq)
**B.** ZOH(aq)
**C.** QOH(aq)
**D.** HQ(aq)

**22.** A polyprotic acid is

**A.** HCOOH(aq)
**B.** $CH_3COOH(aq)$
**C.** HOOCCOOH(aq)
**D.** $C_6H_5COOH(aq)$

**23.** Which may act as both a Brϕnsted-Lowry acid and a Brϕnsted-Lowry base?

**A.** $NH_4^+(aq)$

**B.** $HNO_2(aq)$

**C.** $SO_3^{2-}(aq)$

**D.** $HS^-(aq)$

**24.** Which concentration of HCl(aq) would yield the same pH as 0.10 mol/L $CH_3COOH(aq)$?

**A.** 1.3 mol/L
**B.** $1.0 \times 10^{-1}$ mol/L
**C.** $1.3 \times 10^{-2}$ mol/L
**D.** $1.3 \times 10^{-3}$ mol/L

**25.** A student determines that 0.001 mol/L $HCN(aq)$ has a pH of approximately 6. The student should describe this solution as

**A.** dilute and weakly acidic
**B.** dilute and strongly acidic
**C.** concentrated and weakly acidic
**D.** unable to be determined

**26.** As a solution becomes more acidic, the

**A.** $[H_3O^+(aq)]$ decreases and the pH increases
**B.** $[H_3O^+(aq)]$ decreases and the pH decreases
**C.** $[OH^-(aq)]$ decreases and the pH increases
**D.** $[OH^-(aq)]$ decreases and the pH decreases

**27.** What is the $[OH^-(aq)]$ of a solution that has a pH of 5.70?

**A.** $2.0 \times 10^{-10}$ mol/L
**B.** $5.0 \times 10^{-9}$ mol/L
**C.** $2.0 \times 10^{-6}$ mol/L
**D.** $5.0 \times 10^{-5}$ mol/L

**28.** A solution has a pH of 6.5 and contains a few drops of phenolphthalein, methyl red, and thymol blue. The solution appears

**A.** green
**B.** yellow
**C.** orange
**D.** colorless

**29.** Phenolphthalein is put into a solution containing 0.20 mol of $HCl(aq)$. If 0.18 mol of $NaOH(aq)$ is then added, the solution should be predicted to be

**A.** colorless and acidic
**B.** colorless and basic
**C.** pink and acidic
**D.** pink and basic

**30.** Solutions of methanoic acid and sodium ethanoate are mixed. The net ionic equation that best describes the resulting reaction is

**A.** $H_3O^+(aq) + OH^-(aq) \rightleftharpoons H_2O(l) + H_2O(l)$

**B.** $H_3O^+(aq) + CH_3COO^-(aq) \rightleftharpoons CH_3COOH(aq) + H_2O(aq)$

**C.** $HCOOH(aq) + CH_3COO^-(aq) \rightleftharpoons CH_3COOH(aq) + HCOO^-(aq)$

**D.** $HCOOH(aq) + NaCH_3COO(aq) \rightleftharpoons CH_3COOH(aq) + NaHCOO(aq)$

**31.** The reaction in which products are favored is

**A.** $2HSO_4^-(aq) \rightleftharpoons H_2SO_4(aq) + SO_4^{2-}(aq)$

**B.** $HF(aq) + SO_4^{2-}(aq) \rightleftharpoons HSO_4^-(aq) + F^-(aq)$

**C.** $H_3BO_3(aq) + OCl^-(aq) \rightleftharpoons H_2BO_3^-(aq) + HOCl(aq)$

**D.** $HCO_3^-(aq) + PO_4^{3-}(aq) \rightleftharpoons CO_3^{2-}(aq) + HPO_4^{2-}(aq)$

**Use the following information to answer question 32.**

A chemist performed a titration experiment and found that the volume of acid used from the burette was lower than the calculated theoretical volume needed to neutralize the base. Some of the suggested experimental errors were:

I. Too much base was pipetted into the flask.
II. The endpoint was passed.
III. The wrong indicators were chosen.
IV. There was water in the burette when the acid was added.
V. There was water in the flask when the base was pipetted into it.

**32.** Which of the suggested experimental errors would account for the low volume of acid used?

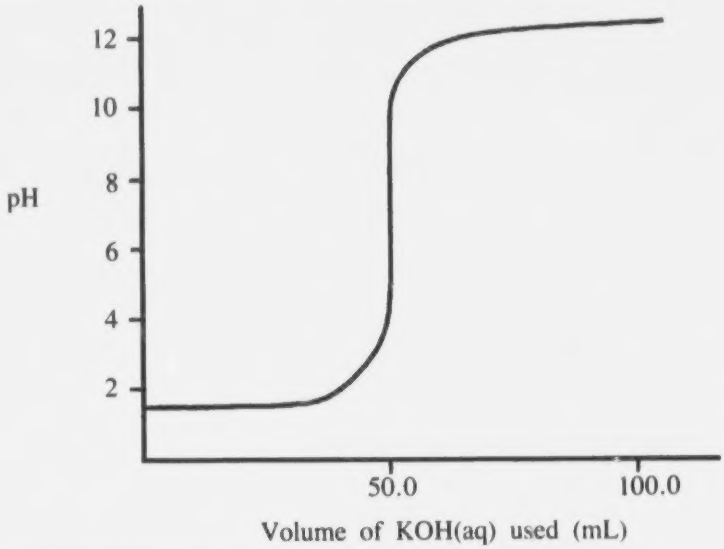
**A.** III only
**B.** II, III, and IV only
**C.** I, III, IV, and V only
**D.** I, II, III, IV, and V

---

**Use the following information to answer question 33.**

The concentration of an acid, HA, was determined by titrating 25.0 mL with a solution of 0.050 mol/L potassium hydroxide.

The variation of pH with volume of potassium hydroxide is shown in the graph.



**33.** The concentration of the acid, HA, is

**A.** 0.10 mol/L
**B.** 0.050 mol/L
**C.** 0.025 mol/L
**D.** 0.010 mol/L

---

**Use the following information to answer question 34.**

$Cr^{3+}(aq) + Al(s) \longrightarrow Cr(s) + Al^{3+}(aq)$

**34.** The species that is reduced is

**A.** Al(s)
**B.** Cr(s)
**C.** $Al^{3+}(aq)$
**D.** $Cr^{3+}(aq)$

---

**Use the following information to answer question 35.**

These half-reactions are used to make an electrochemical cell:

$Sn^{2+}(aq) \leftrightharpoons Sn^{4+}(aq) + 2e^-$ $E° = -0.14$ V
$Al(s) \leftrightharpoons Al^{3+}(aq) + 3e^-$ $E° = +1.66$ V

**35.** Which species is the reducing agent?

**A.** $Al(s)$
**B.** $Al^{3+}(aq)$
**C.** $Sn^{2+}(aq)$
**D.** $Sn^{4+}(aq)$

---

**36.** The net ionic equation for the reaction between aqueous solutions of tin(II) bromide and iron(III) nitrate is

**A.** $Sn^{2+}(aq) + NO_3^-(aq) \longrightarrow NO_2(g) + Sn^{4+}(aq)$

**B.** $Sn^{2+}(aq) + 2Fe^{3+}(aq) \longrightarrow Sn^{4+}(aq) + 2Fe^{2+}(aq)$

**C.** $2Sn^{2+}(aq) + Fe^{3+}(aq) \longrightarrow 2Sn^{3+}(aq) + Fe^{2+}(aq)$

**D.** $Sn^{2+}(aq) + 2NO_3^-(aq) \longrightarrow 2NO_2(g) + Sn^{4+}(aq)$

**37.** In the reaction $Cu(s) + 2Ag^+(aq) \longrightarrow Cu^{2+}(aq) + 2Ag(s)$,

**A.** Cu(s) is reduced by the oxidizing agent
**B.** $Ag^+(aq)$ is the reducing agent and Cu(s) is reduced
**C.** Cu(s) is the reducing agent and $Ag^+(aq)$ is reduced
**D.** Cu(s) is the oxidizing agent and $Ag^+(aq)$ is oxidized

**38.** Which compound of iodine has an oxidation number for iodine that differs from that of the other three compounds?

**A.** $H_4I_2O_9$
**B.** $H_5IO_6$
**C.** $HIO_4$
**D.** $HIO_3$

**Use the following unbalanced half-reaction to answer question 39.**

$ClO_4^-(aq) + 8H^+(aq) + \_\_\_e^- \rightarrow \frac{1}{2}Cl_2(g) + 4H_2O(l)$

**39.** The number of electrons needed to balance the half-reaction is

**A.** 1
**B.** 4
**C.** 7
**D.** 8

---

**Use the following unbalanced redox reaction to answer question 40.**

$\_\_\_O_2(g) + \_\_\_H^+(aq) + \_\_\_Ag(s) \rightarrow \_\_\_Ag^+(aq) + \_\_\_H_2O(l)$

**40.** The coefficients for the balanced equation are

**A.** 1, 4, 4, 4, 2
**B.** 1, 4, 1, 1, 2
**C.** 1, 2, 1, 1, 1
**D.** 1, 1, 1, 1, 1

---

**41.** One half-reaction of a redox reaction can be expressed as $Fe^{3+}(aq) + 3e^- \rightarrow Fe(s)$. The reduction potential of this half-reaction is

**A.** +0.77 V
**B.** +0.04 V
**C.** −0.04 V
**D.** −0.77 V

**42.** Solutions containing $Fe^{2+}(aq)$, $Sn^{2+}(aq)$, and $Cr^{2+}(aq)$ are mixed together. The reaction most likely to occur is

**A.** $2Fe^{2+}(aq) + 2H_2O(l) \rightarrow Fe(s) + O_2(g) + 4H^+(aq)$

**B.** $Sn^{2+}(aq) + 2Cr^{2+}(aq) \rightarrow Sn(s) + 2Cr^{3+}(aq)$

**C.** $Sn^{2+}(aq) + Cr^{2+}(aq) \rightarrow Sn^{4+}(aq) + Cr(s)$

**D.** $Sn^{2+}(aq) + 2Fe^{2+}(aq) \rightarrow Sn(s) + 2Fe^{3+}(aq)$

**Use the following information to answer question 43.**

In an experiment, three strips of metal labelled X, Y, and Z were placed in 1.0 mol/L solutions of $X^{2+}$, $Y^{2+}$, and $Z^{2+}$ ions. The results were tabulated:

| Reagent | $X^{2+}$ | $Y^{2+}$ | $Z^{2+}$ |
|---|---|---|---|
| X | N.R. | ✓ | ✓ |
| Y | N.R. | N.R. | ✓ |
| Z | N.R. | N.R. | N.R. |

N.R. — no reaction
✓ — reaction occurs

**43.** Based on these results, the metals in order of decreasing ability to lose electrons are

**A.** X, Z, Y
**B.** Y, X, Z
**C.** Z, Y, X
**D.** X, Y, Z

---

**Use the following information to answer question 44.**

Four reducing agents listed in order of **decreasing** strength are W, Z, Y, and X.

Four statements about the reaction between the reducing agents and their respective oxidizing agents are:

I. $W(s) + X^{2+}(aq) \longrightarrow W^{2+}(aq) + X(s)$
II. $Y(s) + X^{2+}(aq) \longrightarrow Y^{2+}(aq) + X(s)$
III. $W(s) + Z^{2+}(aq) \longrightarrow$ no reaction
IV. $Y(s) + Z^{2+}(aq) \longrightarrow Y^{2+}(aq) + Z(s)$

**44.** The statement(s) inconsistent with the correct order of reducing agents is(are)

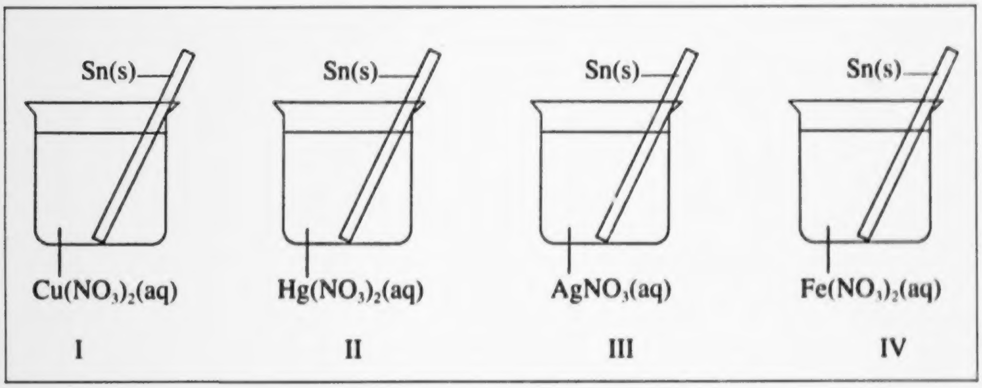
**A.** IV only
**B.** III only
**C.** I and II
**D.** III and IV

---

**45.** The $E°_{net}$ of a gold-silver electrochemical cell, assuming standard state conditions, is

**A.** −2.22 V
**B.** +0.62 V
**C.** +0.98 V
**D.** +2.22 V

**Use the following information to answer question 46.**



**46.** A spontaneous reaction will occur in all beakers **except**

**A.** I
**B.** II
**C.** III
**D.** IV

---

**47.** Which of the following occurs in an operating electrochemical cell?

**A.** Chemical energy is converted to electrical energy.
**B.** Electrical energy is converted to chemical energy.
**C.** A nonspontaneous redox reaction occurs.
**D.** Electrons flow from cathode to anode.

**48.** In electrochemical cells, the cathode is the electrode

**A.** that releases electrons
**B.** at which reduction occurs
**C.** that most likely loses mass
**D.** immersed in the reducing agent

**49.** Four cells containing $CuSO_4(aq)$, $AgNO_3(aq)$, $Pb(NO_3)_2(aq)$, and $Au(NO_3)_3(aq)$, respectively, are connected to power supplies that operate at 12.0 A for 1.00 h. At the end of this time, the cell that will deposit the greatest mass of metal is the

**A.** $Pb(NO_3)_2(aq)$
**B.** $Au(NO_3)_3(aq)$
**C.** $CuSO_4(aq)$
**D.** $AgNO_3(aq)$

**YOU HAVE NOW COMPLETED THE MULTIPLE-CHOICE PART OF THE EXAMINATION. PROCEED DIRECTLY TO PART B.**

# PART B

## INSTRUCTIONS

In this part of the examination, there are seven machine-scorable open-ended questions each with a value of one mark. All numbers used in the questions are to be considered as the result of a measurement.

Read each question carefully.

Solve each question and write your answer to three digits.

Record your answer on the answer sheet provided by writing it in the boxes of the corresponding answer field and by filling in the circles that match your answer. **Use an HB pencil only**.

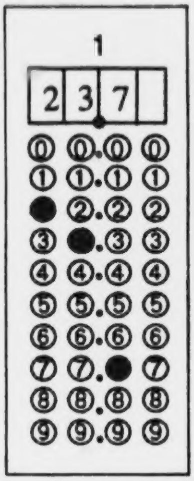
### Sample Question and Solution

1. The mass in grams of silver produced when 0.220 mol of silver nitrate reacts with excess copper to three digits is ________ g.

$$\begin{aligned} \text{mass}_{Ag} &= 0.220 \text{ mol} \times 107.87 \text{ g/mol} \\ &= 23.7314 \text{ g} \\ &= 23.7 \text{ g (rounded to three digits)} \end{aligned}$$

Record 23.7

### Answer Sheet



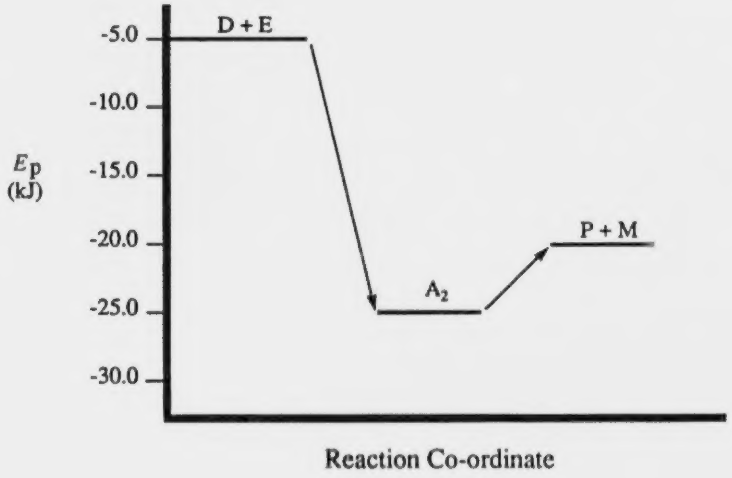
If you wish to change an answer, erase your first answer completely.

> NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

**START PART B IMMEDIATELY.**

**Use the following information to answer question 1.**

An Energy Diagram for a Hypothetical Chemical Reaction



1. The heat released for the reaction D + E → P + M in kilojoules to three digits is ________ kJ.

RECORD THE ANSWER ON THE ANSWER SHEET

2. In an experiment, 50.0 mL of $H_2SO_4(aq)$ are added to 150.0 mL of KOH(aq), and the temperature of the resulting solution increases by 4.00°C. Assume that the specific heat and the density of the system are the same as those of water. The heat produced by this reaction in kilojoules to three digits is ________ kJ.

RECORD THE ANSWER ON THE ANSWER SHEET

3. Students should predict that the [$H_3O^+(aq)$] of a fruit juice with a pH of 2.40 in millimoles per litre to three digits is ________ mmol/L.

RECORD THE ANSWER ON THE ANSWER SHEET

**Use the following information to answer question 4.**

During a titration, results were recorded for three trials of the complete neutralization of 0.100 mol/L $Na_2CO_3(aq)$ with HCl(aq).

| | Trial 1 | Trial 2 | Trial 3 |
|---|---|---|---|
| Volume of $Na_2CO_3(aq)$ | 20.0 mL | 20.0 mL | 20.0 mL |
| Volume of HCl(aq) | 22.5 mL | 22.7 mL | 22.6 mL |

4. The minimum volume of this HCl(aq) required to completely neutralize 20.00 mL of 0.100 mol/L KOH(aq) in millilitres to three digits is ________ mL.

RECORD THE ANSWER ON THE ANSWER SHEET

5. The minimum volume of 0.0250 mol/L $Ag^+(aq)$ necessary to react completely with 2.18 g of Zn(s) in litres to three digits is ______ L.

RECORD THE ANSWER ON THE ANSWER SHEET

6. A student found that in an electrochemical cell utilizing lead metal and silver ions, the mass of lead that reacted was 2.40 g. The mass of silver metal that formed at the same time in grams to three digits was ______ g.

RECORD THE ANSWER ON THE ANSWER SHEET

7. Under standard conditions, the net potential generated by the reaction of Cu(s) with acidified $MnO_4^-(aq)$ in volts to three digits is ______ V.

RECORD THE ANSWER ON THE ANSWER SHEET

**YOU HAVE NOW COMPLETED THE MACHINE-SCORABLE OPEN-ENDED PART OF THE EXAMINATION. PROCEED DIRECTLY TO PART C.**

## PART C

### INSTRUCTIONS

In this part of the examination, there are three written-response questions for a total of 14 marks. All numbers used in the questions are to be considered as the result of a measurement.

Write your solutions in the examination booklet as neatly as possible.

Your solutions **must show all** pertinent explanations, calculations, and formulas. Full marks will be assigned **only** to those solutions that **show** all pertinent explanations, calculations, and formulas.

All numerical answers must be given correct to the appropriate number of significant digits.

> NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

**START PART C IMMEDIATELY.**

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(4 marks)

1. Explain why being burned by 25.0 g of steam at 100°C is more severe than being burned by 25.0 g of water at 100°C. Assume that both the steam and the hot water cool to 35°C. Include relevant calculations to support your response.

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**Use the following equation to answer question 2.**

$$Fe(s) + Sn^{2+}(aq) \longrightarrow Fe^{2+}(aq) + Sn(s)$$

2. Assuming that the net ionic equation is for a functioning electrochemical cell containing 1.0 mol/L solutions, **(5 marks)**

   **a.** write the redox half-reactions and their standard electrode potentials, and calculate the $E^\circ_{net}$.

   **b.** the substance oxidized is ______________ .

   **c.** the cathode substance is ______________ .

   **d.** what would the voltmeter reading be when the cell reaches equilibrium? Why?

*(5 marks)*

3. A student recorded the following data during the titration of a 10.0 mL sample of an unknown acid with a standardized 0.0250 mol/L solution of NaOH(aq):

| Volume of base (mL) | pH | Volume of base (mL) | pH |
|---|---|---|---|
| 2.0 | 5.50 | 20.0 | 10.00 |
| 8.0 | 6.00 | 22.0 | 11.00 |
| 12.0 | 6.50 | 30.0 | 11.90 |
| 14.0 | 7.00 | 32.0 | 12.00 |
| 16.4 | 8.00 | | |

**a.** Carefully plot the data on the graph paper provided on page 23. Mark with a neat "X" the equivalence point on the graph.

Record the following information about the equivalence point:

pH ______________ volume of base __________________

**b.** What indicator could be used to determine the equivalence point?

**c.** From the titration curve, what conclusion can be drawn about the strength of the acid? Justify your answer.

**YOU HAVE NOW COMPLETED THE EXAMINATION. IF YOU HAVE TIME, YOU MAY WISH TO GO BACK AND CHECK YOUR ANSWERS.**

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CHEMISTRY 30

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CHEMISTRY 30

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# EXAMEN EN VUE DU DIPLÔME DOUZIÈME ANNÉE

## Chimie 30

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# CHIMIE 30

## DESCRIPTION

Durée: Deux heures et demie

Total des points possibles: 70

C'est un examen à **livre fermé** qui comprend trois parties:

La PARTIE A a 49 questions à choix multiples dont chacune vaut un point.

La PARTIE B a sept questions ouvertes à correction mécanographique dont chacune vaut un point.

La PARTIE C a trois questions écrites pour un total de 14 points.

Un livret de données de chimie vous est fourni comme référence.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

## INSTRUCTIONS GÉNÉRALES

Remplissez les renseignements demandés sur la feuille de réponses et sur le livret d'examen en suivant les instructions de l'examinateur.

Vous êtes tenus d'apporter votre propre calculatrice scientifique approuvée.

Lisez attentivement les instructions pour chaque partie avant de commencer.

**NE PLIEZ NI LA FEUILLE DE RÉPONSES NI LE LIVRET D'EXAMEN.**

L'examinateur ramassera votre feuille de réponses et le livret d'examen et les fera parvenir à Alberta Education.

JANVIER 1990

## PARTIE A

**INSTRUCTIONS**

Il y a 49 questions à choix multiples dans cette partie de l'examen et chacune d'elles a une valeur d'un point. Tous les nombres utilisés dans les questions doivent être considérés comme étant le résultat de mesures.

Lisez attentivement chaque question et choisissez, parmi les réponses proposées, celle qui complète **le mieux** l'énoncé ou répond **le mieux** à la question. Trouvez le numéro de cette question sur la feuille de réponses séparée qui est fournie et remplissez l'espace qui correspond à votre choix. **Utilisez seulement un crayon HB.**

**Exemple**

Cet examen porte sur la matière suivante

A. Biologie
B. Physique
C. Chimie
D. Mathématiques

**Feuille de réponses**

| A | B | C | D |
|---|---|---|---|
| ① | ② | ● | ④ |

Si vous voulez changer votre réponse, effacez d'abord complètement votre première réponse.

> NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

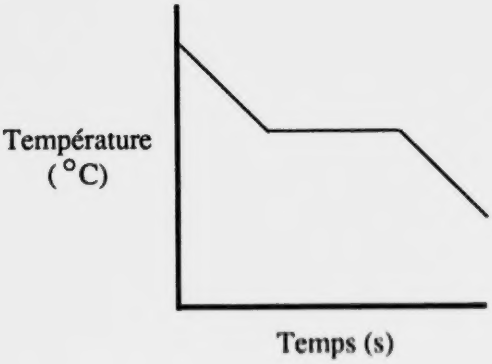
NE TOURNEZ PAS LA PAGE POUR COMMENCER L'EXAMEN
AVANT QUE L'EXAMINATEUR NE VOUS LE DISE.

1. Si, pendant une transformation d'énergie, l'enthalpie des produits est différente de celle des réactifs mais qu'aucune nouvelle substance ne se forme, la transformation sera probablement

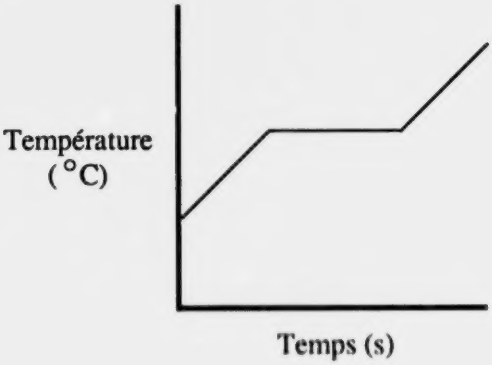
   A. une transformation chimique ou un changement de phase
   B. une transformation nucléaire ou un changement chimique
   C. un changement de phase ou un changement de température
   D. une transformation nucléaire ou un changement de température

2. De l'eau à 25,0°C est chauffée et se vaporise à 150,0°C. Quel diagramme illustre les changements d'enthalpie qui se produisent?

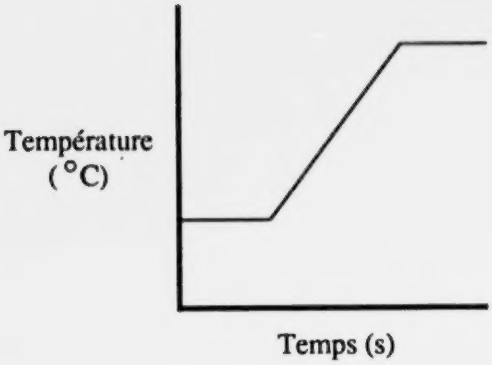
A.



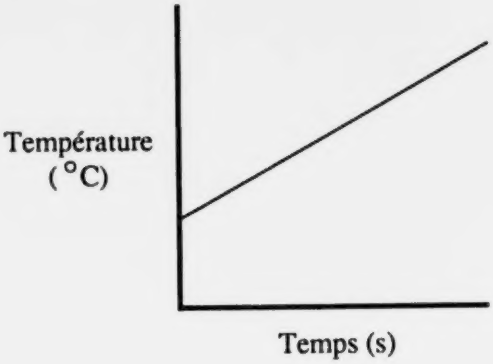
B.



C.



D.



3. 0,250 mol d'un élément X est brûlée dans l'oxygène pour produire 0,250 mol de l'oxyde correspondant. La température de 200,0 g de l'eau environnante monte de 15,0°C. La chaleur molaire de formation du composé est

   A. -1,26 kJ/mol
   B. -3,15 kJ/mol
   C. -12,6 kJ/mol
   D. -50,3 kJ/mol

4. Lequel de ces composés est le plus stable?

A. $H_2O(\ell)$
B. $NO_2(g)$
C. $C_2H_4(g)$
D. $Al_2O_3(s)$

Utilisez l'information suivante pour répondre à la question 5.

| | | |
|---|---|---|
| I. | $2CH_4(g) + O_2(g) \rightarrow 2CH_3OH(g) + 385{,}8\ kJ$ | |
| II. | $2NH_3(g) + 92{,}4\ kJ \rightarrow N_2(g) + 3H_2(g)$ | |
| III. | $2NO(g) + O_2(g) \rightarrow 2NO_2(g)$ | $\Delta H = -113{,}2\ kJ$ |
| IV. | $C_2H_6(g) \rightarrow C_2H_4(g) + H_2(g)$ | $\Delta H = +137{,}0\ kJ$ |

5. Les deux réactions endothermiques sont

A. I et II
B. I et IV
C. II et IV
D. II et III

---

Utilisez l'information suivante pour répondre à la question 6.

On donne un énoncé et une explication pour cette réaction:

$$C_5H_{12}(\ell) + 8O_2(g) \rightarrow 5CO_2(g) + 6H_2O(g)$$

| Énoncé | Explication |
|---|---|
| La réaction est exothermique. | L'enthalpie des produits est inférieure à celle des réactifs. |

6. En se basant sur la réaction, on devrait conclure que

A. l'énoncé et l'explication sont vrais, et que l'explication est bonne pour l'énoncé

B. l'énoncé et l'explication sont vrais, mais que l'explication n'est pas bonne pour l'énoncé

C. l'énoncé est vrai, mais que l'explication est fausse

D. l'énoncé est faux, mais que l'explication est vraie

---

7. La meilleure interprétation qu'un élève peut faire quand un liquide se transforme en vapeur à son point d'ébullition est que

A. l'énergie potentielle des molécules augmente
B. les liaisons au sein des molécules sont redisposées
C. l'énergie cinétique des molécules diminue
D. la température du système monte

Utilisez l'information suivante pour répondre à la question 8.

I. $2K(s) + 2H_2O(\ell) \rightarrow 2KOH(aq) + H_2(g)$

II. $Fe(\ell) \rightarrow Fe(s)$

III. $2\,{}^{3}_{2}He \rightarrow {}^{4}_{2}He + 2\,{}^{1}_{1}H$

IV. $2CH_3OH(\ell) + 3O_2(g) \rightarrow 2CO_2(g) + 4H_2O(g)$

8. Quelle réaction devrait libérer la plus grande quantité d'énergie?

A. I
B. II
C. III
D. IV

Utilisez l'information suivante pour répondre à la question 9.

I. Un élément subit une réaction chimique.

II. Un élément subit un changement de numéro atomique.

III. Un élément subit deux changements de phase à mesure que la température augmente.

IV. Un élément subit un changement de phase sans changement de température.

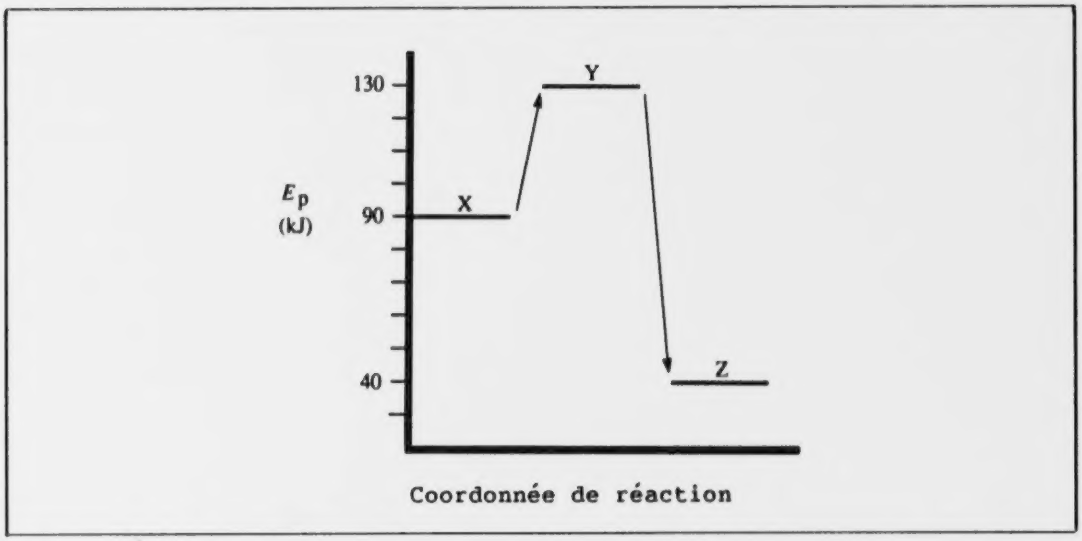
9. L'observateur devrait prédire

A. que I, II et III sont des exemples de réactions exothermiques
B. qu'une grande transformation d'énergie est associée à l'énoncé II
C. qu'aucune transformation d'énergie n'est associée à l'énoncé IV
D. que l'ordre relatif de transformation d'énergie de la plus grande à la plus petite est I, II, III, IV

10. Pour la réaction $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$, prédisez la masse de CaO(s) produit quand 712 kJ d'énergie sont absorbés.

A. 4,00 g
B. 17,8 g
C. 62,8 g
D. 224 g

Utilisez le diagramme suivant pour répondre à la question 11.



11. La $\Delta H$ pour la réaction X → Z est

A. +130 kJ
B. +40 kJ
C. -50 kJ
D. -90 kJ

---

12. Pendant la production d'une petite quantité de substance, il y a une grosse diminution de la température de l'eau dans le calorimètre. La $\Delta H$ de la réaction serait

A. grande et positive
B. petite et positive
C. petite et négative
D. grande et négative

Utilisez l'information suivante pour répondre à la question 13.

Un élève a fait cette expérience:

- noté la température de l'eau
- obtenu 2,5 g de grains de $NaOH(s)$
- ajouté les grains à l'eau et remué jusqu'à ce qu'ils se dissolvent
- observé une augmentation de la température de l'eau

13. Quel énoncé pourrait être prouvé en utilisant **seulement** la procédure exposée?

A. La chaleur de réaction de $NaOH(s)$ avec $H_2O(\ell)$ est 426,7 kJ/mol.
B. La solubilité de $NaOH(s)$ est modifiée par la $\Delta t$ de l'eau.
C. Une réaction exothermique se produira quand $NaOH(s)$ sera ajoutée à $H_2O(\ell)$.
D. La $\Delta t$ de l'eau variera avec une augmentation de la quantité de $NaOH(s)$ dissoute.

---

Utilisez les données suivantes pour répondre à la question 14.

$$N_2O_3(g) \rightarrow NO(g) + NO_2(g) \qquad \Delta H = +40,2 \text{ kJ}$$

$$2NO_2(g) \rightarrow N_2O_4(g) \qquad \Delta H = -23,4 \text{ kJ}$$

14. Pour la réaction $2NO(g) + N_2O_4(g) \rightarrow 2N_2O_3(g)$, la $\Delta H$ est

A. -63,6 kJ
B. -57,0 kJ
C. -33,6 kJ
D. +16,8 kJ

---

Utilisez l'information suivante pour répondre à la question 15.

Dans une expérience, la même quantité de chaleur a été ajoutée à diverses masses d'eau ayant la même température initiale. Les températures finales de l'eau ont été enregistrées.

15. Si on porte les données de cette expérience sur un graphique, quelle variable sera la variable dépendante?

A. Masse d'eau
B. Température finale
C. Température initiale
D. Quantité de chaleur

16. Pour la transformation $CS_2(g) \rightarrow CS_2(\ell)$, $\Delta H = -27{,}44$ kJ. La chaleur dégagée quand 15,2 g de bisulfure de carbone gazeux sont convertis à l'état de liquide est

A. 417 kJ
B. 27,4 kJ
C. 5,48 kJ
D. 2,74 kJ

17. Une solution est bonne conductrice de l'électricité. Elle n'a eu aucun effet sur le tournesol rouge ou bleu et ne réagit pas avec le magnésium métal. La solution pourrait être

A. $HCl(aq)$
B. $NaOH(aq)$
C. $NaCl(aq)$
D. $C_2H_5OH(aq)$

Utilisez l'information suivante pour répondre à la question 18.

Un élève a analysé quatre solutions pour voir leur conductivité et leurs propriétés comme indicateurs et a fait un tableau des résultats:

| Solution | Conductivité | Bleu de bromothymol |
|---|---|---|
| I | élevée | jaune |
| II | élevée | vert |
| III | basse | vert |
| IV | élevée | bleu |

18. La solution qui a le plus de chance d'être $KNO_3(aq)$ est

A. I
B. II
C. III
D. IV

19. Laquelle des réactions suivantes représente une neutralisation?

A. $H_2SO_4(aq) \rightarrow H^+(aq) + HSO_4^-(aq)$

B. $C_5H_{12}(\ell) + 8O_2(g) \rightarrow 5CO_2(g) + 6H_2O(g)$

C. $NH_4OH(aq) + HClO_3(aq) \rightarrow NH_4ClO_3(aq) + H_2O(\ell)$

D. $3BaCl_2(aq) + Al_2(SO_4)_3(aq) \rightarrow 2AlCl_3(aq) + 3BaSO_4(s)$

20. Quand on le compare à un acide faible, un acide plus fort peut se définir, sur le plan conceptuel, comme un acide qui

A. se dissocie plus dans l'eau pour produire des ions hydronium
B. est moins facilement conducteur du courant électrique
C. neutralise les bases plus efficacement
D. produit un sel plus soluble

21. Deux ions hypothétiques $Z^+(aq)$ et $Q^-(aq)$ forment des composés ZOH(aq) et HQ(aq) en se combinant respectivement avec les ions hydroxyde et hydrogène. La base d'Arrhenius dans la réaction entre ces composés sera

A. ZQ(aq)
B. ZOH(aq)
C. QOH(aq)
D. HQ(aq)

22. Un acide polyprotique est

A. HCOOH(aq)
B. $CH_3COOH(aq)$
C. HOOCCOOH(aq)
D. $C_6H_5COOH(aq)$

23. Lequel peut agir à la fois comme acide de Brønsted-Lowry et comme base de Brønsted-Lowry?

A. $NH_4^+(aq)$

B. $HNO_2(aq)$

C. $SO_3^{2-}(aq)$

D. $HS^-(aq)$

24. Quelle concentration de HCl(aq) produirait le même pH que $CH_3COOH(aq)$ à 0,10 mol/L?

A. 1,3 mol/L
B. $1,0 \times 10^{-1}$ mol/L
C. $1,3 \times 10^{-2}$ mol/L
D. $1,3 \times 10^{-3}$ mol/L

25. Une élève détermine que HCN(aq) à 0,001 mol/L a un pH d'environ 6. L'élève devrait décrire cette solution comme

A. diluée et faiblement acide
B. diluée et fortement acide
C. concentrée et faiblement acide
D. impossible à déterminer

26. À mesure qu'une solution devient plus acide, la

A. $[H_3O^+(aq)]$ diminue et le pH augmente
B. $[H_3O^+(aq)]$ diminue et le pH diminue
C. $[OH^-(aq)]$ diminue et le pH augmente
D. $[OH^-(aq)]$ diminue et le pH diminue

27. Quelle est la $[OH^-(aq)]$ d'une substance qui a un pH de 5,70?

A. $2,0 \times 10^{-10}$ mol/L
B. $5,0 \times 10^{-9}$ mol/L
C. $2,0 \times 10^{-6}$ mol/L
D. $5,0 \times 10^{-5}$ mol/L

28. Une solution a un pH de 6,5 et contient quelques gouttes de phénolphtaléine, de rouge de méthyle et de bleu de thymol. La solution paraît

A. verte
B. jaune
C. orange
D. incolore

29. On met de la phénolphtaléine dans une solution contenant 0,20 mol de HCl(aq). Si on ajoute ensuite 0,18 mol de NaOH(aq), on peut prédire que la solution sera

A. incolore et acide
B. incolore et basique
C. rose et acide
D. rose et basique

30. Des solutions d'acide méthanoïque et d'éthanoate de sodium sont mélangées. L'équation ionique nette qui décrit le mieux la réaction qui en résulte est

A. $H_3O^+(aq) + OH^-(aq) \rightleftharpoons H_2O(\ell) + H_2O(\ell)$

B. $H_3O^+(aq) + CH_3COO^-(aq) \rightleftharpoons CH_3COOH(aq) + H_2O(aq)$

C. $HCOOH(aq) + CH_3COO^-(aq) \rightleftharpoons CH_3COOH(aq) + HCOO^-(aq)$

D. $HCOOH(aq) + NaCH_3COO(aq) \rightleftharpoons CH_3COOH(aq) + NaHCOO(aq)$

31. La réaction dans laquelle les produits sont favorisés est

A. $2HSO_4^-(aq) \rightleftharpoons H_2SO_4(aq) + SO_4^{2-}(aq)$

B. $HF(aq) + SO_4^{2-}(aq) \rightleftharpoons HSO_4^-(aq) + F^-(aq)$

C. $H_3BO_3(aq) + OCl^-(aq) \rightleftharpoons H_2BO_3^-(aq) + HOCl(aq)$

D. $HCO_3^-(aq) + PO_4^{3-}(aq) \rightleftharpoons CO_3^{2-}(aq) + HPO_4^{2-}(aq)$

Utilisez l'information suivante pour répondre à la question 32.

Un chimiste a fait une expérience de titrage et a trouvé que le volume d'acide de la burette qui a été utilisé était inférieur au volume théorique calculé comme étant nécessaire pour neutraliser la base. Certaines des erreurs expérimentales suggérées étaient:

I. Trop de base a été pipettée dans la fiole.
II. Le point de virage a été dépassé.
III. De mauvais indicateurs ont été choisis.
IV. Il y avait de l'eau dans la burette quand l'acide a été ajouté.
V. Il y avait de l'eau dans la fiole quand la base y a été pipettée.

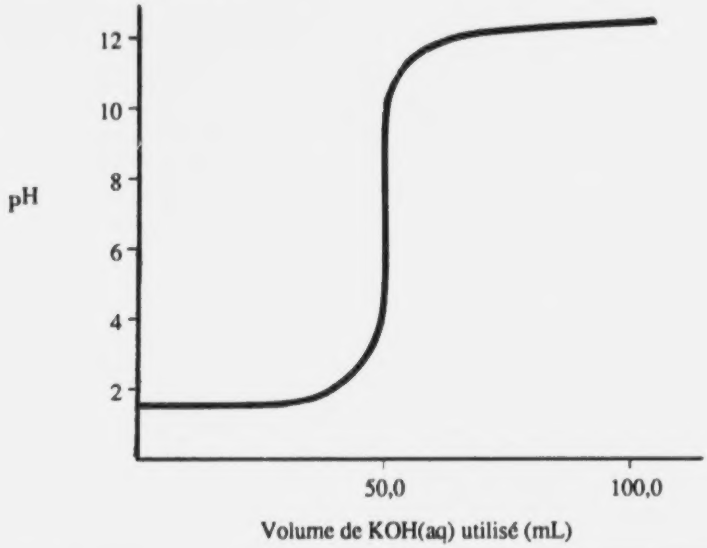
32. Laquelle ou lesquelles des erreurs expérimentales suggérées justifierai(en)t le faible volume d'acide utilisé?

A. III seulement
B. II, III et IV seulement
C. I, III, IV et V seulement
D. I, II, III, IV et V

Utilisez l'information suivante pour répondre à la question 33.

La concentration d'un acide HA a été déterminée en titrant 25,0 mL avec une solution d'hydroxyde de potassium de 0,050 mol/L.

La variation de pH avec le volume d'hydroxyde de potassium est indiquée sur le graphique.



33. La concentration de l'acide HA est

A. 0,10 mol/L
B. 0,050 mol/L
C. 0,025 mol/L
D. 0,010 mol/L

---

Utilisez l'information suivante pour répondre à la question 34.

$$Cr^{3+}(aq) + Al(s) \rightarrow Cr(s) + Al^{3+}(aq)$$

34. L'espèce qui est réduite est

A. $Al(s)$
B. $Cr(s)$
C. $Al^{3+}(aq)$
D. $Cr^{3+}(aq)$

Utilisez l'information suivante pour répondre à la question 35.

Ces demi-réactions sont utilisées pour fabriquer une pile électrochimique:

$Sn^{2+}(aq) \rightleftharpoons Sn^{4+}(aq) + 2e^-$  $E° = -0,14$ V
$Al(s) \rightleftharpoons Al^{3+}(aq) + 3e^-$  $E° = +1,66$ V

35. Quelle espèce est le réducteur?

A. $Al(s)$
B. $Al^{3+}(aq)$
C. $Sn^{2+}(aq)$
D. $Sn^{4+}(aq)$

---

36. L'équation ionique nette pour la réaction entre des solutions aqueuses de bromure d'étain(II) et de nitrate de fer(III) est

A. $Sn^{2+}(aq) + NO_3^-(aq) \rightarrow NO_2(g) + Sn^{4+}(aq)$

B. $Sn^{2+}(aq) + 2Fe^{3+}(aq) \rightarrow Sn^{4+}(aq) + 2Fe^{2+}(aq)$

C. $2Sn^{2+}(aq) + Fe^{3+}(aq) \rightarrow 2Sn^{3+}(aq) + Fe^{2+}(aq)$

D. $Sn^{2+}(aq) + 2NO_3^-(aq) \rightarrow 2NO_2(g) + Sn^{4+}(aq)$

37. Dans la réaction $Cu(s) + 2Ag^+(aq) \rightarrow Cu^{2+}(aq) + 2Ag(s)$,

A. $Cu(s)$ est réduit par l'oxydant
B. $Ag^+(aq)$ est le réducteur et $Cu(s)$ est réduit
C. $Cu(s)$ est le réducteur et $Ag^+(aq)$ est réduit
D. $Cu(s)$ est l'oxydant et $Ag^+(aq)$ est oxydé

38. Quel composé de l'iode a un nombre d'oxydation pour l'iode qui diffère de celui des trois autres composés?

A. $H_4I_2O_9$

B. $H_5IO_6$

C. $HIO_4$

D. $HIO_3$

Utilisez la demi-réaction non équilibrée suivante pour répondre à la question 39.

| |
|---|
| $ClO_4^-(aq) + 8H^+(aq) +$ _____ $e^- \rightarrow \frac{1}{2}Cl_2(g) + 4H_2O(\ell)$ |

39. Le nombre d'électrons nécessaires pour équilibrer la demi-réaction est

A. 1
B. 4
C. 7
D. 8

---

Utilisez la réaction redox non équilibrée suivante pour répondre à la question 40.

| |
|---|
| _____ $O_2(g)$ + _____ $H^+(aq)$ + _____ $Ag(s) \rightarrow$ _____ $Ag^+(aq)$ + _____ $H_2O(\ell)$ |

40. Les coefficients de l'équation équilibrée sont

A. 1, 4, 4, 4, 2
B. 1, 4, 1, 1, 2
C. 1, 2, 1, 1, 1
D. 1, 1, 1, 1, 1

---

41. Une demi-réaction d'une réaction redox peut être exprimée sous la forme $Fe^{3+}(aq) + 3e^- \rightarrow Fe(s)$. Le potentiel de réduction de cette demi-réaction est

A. +0,77 V
B. +0,04 V
C. -0,04 V
D. -0,77 V

42. Des solutions contenant $Fe^{2+}(aq)$, $Sn^{2+}(aq)$ et $Cr^{2+}(aq)$ sont mélangées ensemble. La réaction la plus susceptible de se produire est

A. $2Fe^{2+}(aq) + 2H_2O(\ell) \rightarrow Fe(s) + O_2(g) + 4H^+(aq)$

B. $Sn^{2+}(aq) + 2Cr^{2+}(aq) \rightarrow Sn(s) + 2Cr^{3+}(aq)$

C. $Sn^{2+}(aq) + Cr^{2+}(aq) \rightarrow Sn^{4+}(aq) + Cr(s)$

D. $Sn^{2+}(aq) + 2Fe^{2+}(aq) \rightarrow Sn(s) + 2Fe^{3+}(aq)$

Utilisez l'information suivante pour répondre à la question 43.

Dans une expérience, trois bandes de métal X, Y et Z ont été mises dans des solutions à 1,0 mol/L d'ions $X^{2+}$, $Y^{2+}$ et $Z^{2+}$. Les résultats ont été portés sur un tableau:

| Réactif | $X^{2+}$ | $Y^{2+}$ | $Z^{2+}$ |
|---|---|---|---|
| X | N.R. | ✓ | ✓ |
| Y | N.R. | N.R. | ✓ |
| Z | N.R. | N.R. | N.R. |

N.R. -- nulle réaction
✓ -- réaction

43. En se basant sur ces résultats, les métaux, par ordre d'aptitude décroissante à perdre des électrons, sont

A. X, Z, Y
B. Y, X, Z
C. Z, Y, X
D. X, Y, Z

---

Utilisez l'information suivante pour répondre à la question 44.

Quatre réducteurs donnés par ordre de force **décroissante** sont W, Z, Y et X.

Quatre énoncés sur la réaction entre les réducteurs et leurs oxydants respectifs sont:

I. $W(s) + X^{2+}(aq) \rightarrow W^{2+}(aq) + X(s)$
II. $Y(s) + X^{2+}(aq) \rightarrow Y^{2+}(aq) + X(s)$
III. $W(s) + Z^{2+}(aq) \rightarrow$ pas de réaction
IV. $Y(s) + Z^{2+}(aq) \rightarrow Y^{2+}(aq) + Z(s)$

44. Les énoncé(s) incompatible(s) avec l'ordre exact des réducteurs est(sont)

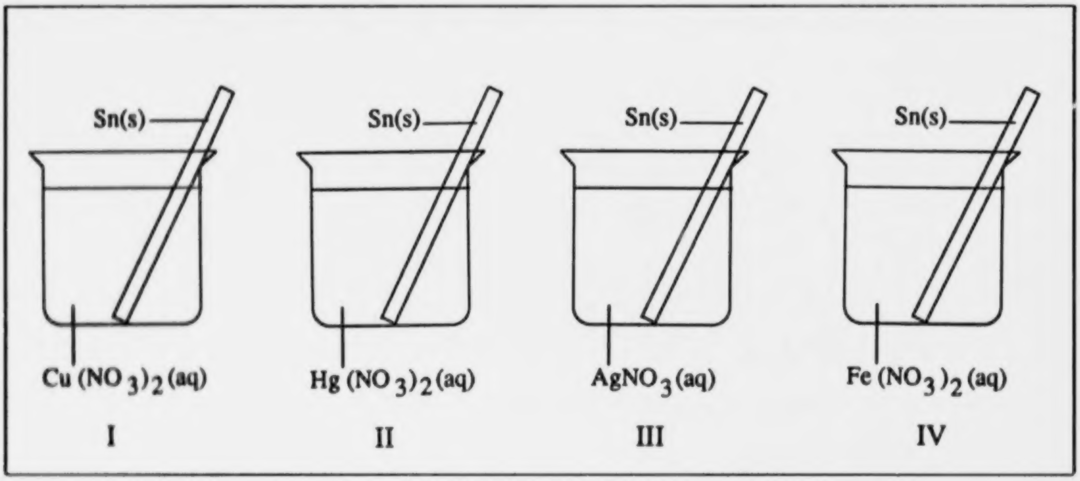
A. IV seulement
B. III seulement
C. I et II
D. III et IV

---

45. La $E°_{net}$ d'une pile électrochimique or-argent, en supposant des conditions normales, est

A. -2,22 V
B. +0,62 V
C. +0,98 V
D. +2,22 V

Utilisez l'information suivante pour répondre à la question 46.



46. Une réaction spontanée se produira dans tous les béchers sauf

A. I
B. II
C. III
D. IV

---

47. Laquelle des choses suivantes se produit dans une pile électrochimique en marche?

A. L'énergie chimique est convertie en énergie électrique.
B. L'énergie électrique est convertie en énergie chimique.
C. Une réaction redox non-spontanée se produit.
D. Les électrons vont de la cathode vers l'anode.

48. Dans les piles électrochimiques, la cathode est l'électrode

A. qui libère des électrons
B. à laquelle la réduction se produit
C. qui risque le plus de perdre de la masse
D. immergée dans le réducteur

49. Quatre piles contenant respectivement $CuSO_4(aq)$, $AgNO_3(aq)$, $Pb(NO_3)_2(aq)$ et $Au(NO_3)_3(aq)$ sont connectées à des sources électriques qui ont une intensité de 12,0 A pendant 1,00 h. À la fin de ce temps, la pile qui aura déposé la plus grande masse de métal sera

A. $Pb(NO_3)_2(aq)$
B. $Au(NO_3)_3(aq)$
C. $CuSO_4(aq)$
D. $AgNO_3(aq)$

**VOUS AVEZ MAINTENANT FINI LA PARTIE À CHOIX MULTIPLES DE L'EXAMEN. PASSEZ DIRECTEMENT À LA PARTIE B.**

## PARTIE B

**INSTRUCTIONS**

Dans cette partie de l'examen, il y a sept questions ouvertes corrigées mécanographiquement, valant chacune un point. Tous les nombres utilisés dans les questions doivent être considérés comme étant le résultat de mesures.

Lisez attentivement chaque question.

Résolvez chaque question et écrivez votre réponse à trois chiffres.

Inscrivez votre réponse sur la feuille de réponses qui vous est fournie en écrivant dans les cases du champ de réponses correspondant et en remplissant les cercles qui correspondent à votre réponse.
**Utilisez seulement un crayon HB.**

**Exemples de question et de solution**

1. La masse d'argent en grammes, produite quand 0,220 mol de nitrate d'argent réagit avec un excédent de cuivre et donnée avec trois chiffres, est ________g.

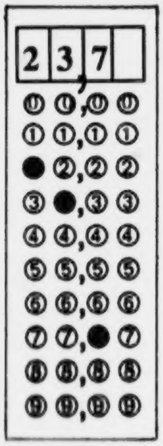
$$\text{masse}_{Ag} = 0{,}220\ \text{mol} \times 107{,}87\ \text{g/mol}$$

$$= 23{,}7314\ \text{g}$$

$$= 23{,}7\ \text{g (arrondi à trois chiffres)}$$

Inscrivez 23,7

**Feuille de réponses**



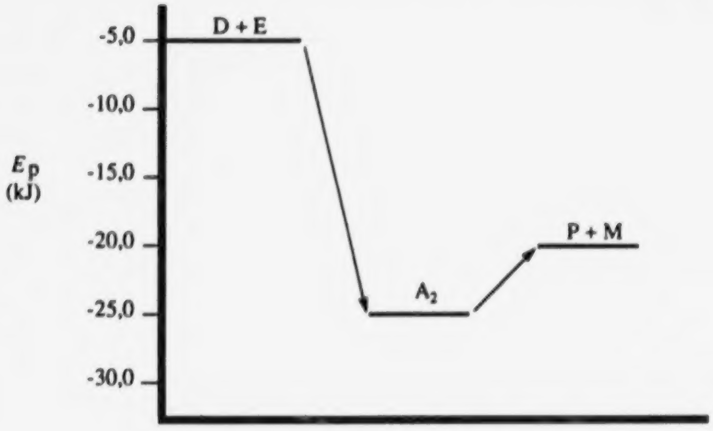
Si vous voulez changer une réponse, effacez d'abord complètement votre première réponse.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

COMMENCEZ IMMÉDIATEMENT LA PARTIE B.

Utilisez l'information suivante pour répondre à la question 1.

Diagramme d'énergie pour une réaction chimique hypothétique



Coordonnée de réaction

1. La chaleur dégagée par la réaction D + E → P + M en kilojoules, avec trois chiffres, est _______ kJ.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

2. Dans une expérience, 50,0 mL de $H_2SO_4(aq)$ sont ajoutés à 150,0 mL de KOH(aq), et la température de la solution qui en résulte augmente de 4,00°C. Supposez que la chaleur spécifique et la densité du système sont les mêmes que celles de l'eau. La chaleur produite par cette réaction en kilojoules, avec trois chiffres, est ________ kJ.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

3. Des élèves devraient prédire que la [$H_3O^+(aq)$] d'un jus de fruit, qui a un pH de 2,40, en millimoles par litre, avec trois chiffres, est ________ mmol/L.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

Utilisez l'information suivante pour répondre à la question 4.

Pendant un titrage, les résultats ont été notés pour trois essais de la neutralisation complète de $Na_2CO_3(aq)$ à 0,100 mol/L avec HCl(aq).

| | Essai 1 | Essai 2 | Essai 3 |
|---|---|---|---|
| Volume de $Na_2CO_3(aq)$ | 20,0 mL | 20,0 mL | 20,0 mL |
| Volume de HCl(aq) | 22,5 mL | 22,7 mL | 22,6 mL |

4. Le volume minimum de HCl(aq) nécessaire pour neutraliser complètement 20,00 mL de KOH(aq) à 0,100 mol/L, donné en millilitres, avec trois chiffres, est ________ mL.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

5. Le volume minimum de $Ag^+(aq)$ à 0,0250 mol/L nécessaire pour réagir complètement avec 2,18 g de $Zn(s)$, donné en litres, avec trois chiffres, est ________ L.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

6. Un élève a trouvé que, dans une pile électrochimique utilisant du plomb métal et des ions argent, la masse de plomb qui a réagi était de 2,40 g. La masse d'argent métal qui s'est formée en même temps, en grammes et avec trois chiffres, était de _________ g.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

7. Dans les conditions normales, le potentiel net produit par la réaction de $Cu(s)$ avec $MnO_4^-(aq)$ acidifié, donné en volts, avec trois chiffres, est __________ V.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

**VOUS AVEZ MAINTENANT FINI LA PARTIE OUVERTE À CORRECTION MÉCANOGRAPHIQUE DE L'EXAMEN. PASSEZ DIRECTEMENT À LA PARTIE C.**

## PARTIE C

**INSTRUCTIONS**

Il y a trois questions écrites pour un total de 14 points dans cette partie de l'examen. Tous les nombres utilisés dans les questions doivent être considérés comme étant le résultat de mesures.

Écrivez toutes vos solutions aussi nettement que possible dans le livret d'examen.

Vos solutions **doivent indiquer** toutes les explications, formules et calculs pertinents. On ne donnera tous les points **qu'aux solutions indiquant** toutes les explications, formules et calculs pertinents.

Toutes les réponses numériques doivent être données avec le nombre approprié de chiffres significatifs.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

COMMENCEZ IMMÉDIATEMENT LA PARTIE C.

**À L'USAGE EXCLUSIF DU SERVICE**

(4 points)

1. Expliquez pourquoi il est plus grave d'être brûlé par 25,0 g de vapeur à 100°C que d'être brûlé par 25,0 g d'eau à 100°C. Supposez que la vapeur et l'eau chaude se refroidissent jusqu'à 35°C. Incluez les calculs pertinents à l'appui de votre réponse.

À L'USAGE
EXCLUSIF
DU SERVICE

Utilisez l'information suivante pour répondre à la question 2.

$$Fe(s) + Sn^{2+}(aq) \rightarrow Fe^{2+}(aq) + Sn(s)$$

2. Supposant que l'équation ionique nette se rapporte à une pile électrochimique en marche et contenant des solutions à 1,0 mol/L, (5 points)

   a. écrivez les demi-réactions redox et leurs potentiels d'électrode normaux, et calculez la $E°_{net}$.

   b. la substance oxydée est ______________.

   c. la substance à la cathode est ______________.

   d. quel serait le relevé du voltmètre quand la pile atteindrait l'équilibre? Pourquoi?

À L'USAGE EXCLUSIF DU SERVICE

(5 points)

3. Une élève a enregistré les données suivantes pendant le titrage d'un échantillon de 10,0 mL d'acide inconnu avec un solution normalisée de NaOH(aq) à 0,0250 mol/L:

| Volume de base (mL) | pH | Volume de base (mL) | pH |
|---|---|---|---|
| 2,0 | 5,50 | 20,0 | 10,00 |
| 8,0 | 6,00 | 22,0 | 11,00 |
| 12,0 | 6,50 | 30,0 | 11,90 |
| 14,0 | 7,00 | 32,0 | 12,00 |
| 16,4 | 8,00 | | |

a. Portez soigneusement les données sur le papier quadrillé fourni à la page 23. Marquez d'un "X" net le point d'équivalence sur le graphique.

Inscrivez l'information suivante sur le point d'équivalence:

pH ____________ volume de base __________________

b. Quel indicateur pourrait servir à déterminer le point d'équivalence?

c. D'après la courbe de titrage, quelle conclusion peut être tirée sur la force de l'acide? Justifiez votre réponse.

**VOUS AVEZ MAINTENANT FINI L'EXAMEN. S'IL VOUS RESTE DU TEMPS, VOUS VOUDREZ PEUT-ÊTRE REVOIR VOS RÉPONSES POUR LES VÉRIFIER.**

À L'USAGE
EXCLUSIF
DU SERVICE

FEUILLE À
DÉTACHER

(ON NE DONNERA PAS DE POINTS POUR LE TRAVAIL FAIT SUR CETTE PAGE)

PLIER ET DÉTACHER LE LONG DE LA PERFORATION

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Chimie 30

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Chimie 30

# GRADE 12
# DIPLOMA EXAMINATION

## English 30

### Part A: Written Response

January 1990

Alberta
EDUCATION

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## GRADE 12 DIPLOMA EXAMINATION
## ENGLISH 30

### Part A: Written Response

### GENERAL INSTRUCTIONS

This examination consists of TWO assignments. Read the **WHOLE** examination before you begin to write. Follow instructions carefully. Complete **BOTH** assignments.

TOTAL TIME: 2½ hours
Budget your time carefully.

| | | Page Number |
|---|---|---|
| MINOR ASSIGNMENT: | Personal Response to Literature<br>Suggested time: approximately ½ hour<br>Value: 30% of this examination | 2-4 |
| MAJOR ASSIGNMENT: | Literature Composition<br>Suggested time: approximately 1½ to 2 hours<br>Value: 70% of this examination | 10 |

You may use a nonelectronic English language dictionary and a thesaurus.

Space is provided for Planning and Drafting and for Revised Work.

Please write your revised work in blue or black ink.

**DO NOT WRITE YOUR NAME ANYWHERE IN THE TEST BOOKLET.**

**JANUARY 1990**

**Instructions**

1. **Read "The White Knight" carefully and thoughtfully before you start the writing assignments.**
2. **Read BOTH the Minor and Major assignments before you start writing.**

## THE WHITE KNIGHT

Once upon a time there was a knight who lived in a little castle on the edge of the forest of Life. One day this knight looked in the mirror and saw that he was a White Knight.

"Lo!" he cried. "I am a White Knight and therefore represent good. I am the champion of virtue and honour and justice, and I must ride into the forest and slay the Black Knight, who is evil."

So the White Knight mounted his snow-white horse and rode into the forest to find the Black Knight and slay him in single combat.

Many miles he rode the first day, without so much as a glimpse of the Black Knight. The second day he rode even farther, still without sighting the ebony armour of mischief. Day after day he rode, deeper and deeper into the forest of Life, searching thicket and gulley and even the tree-tops. The Black Knight was nowhere to be seen.

Yet the White Knight found many signs of the Black Knight's presence. Again and again he passed a village in which the Black Knight had struck — a baker's shop robbed, a horse stolen, an innkeeper's daughter ravished. But always he just missed catching the doer of these deeds.

At last the White Knight had spent all his gold in the cause of his search. He was tired and hungry. Feeling his strength ebbing, he was forced to steal some buns from a bakeshop. His horse went lame, so that he was forced to replace it, silently and by darkness, with another white horse in somebody's stable. And when he stumbled, faint and exhausted, into an inn, the innkeeper's daughter gave him her bed, and because he was the White Knight in shining armour, she gave him her love, and when he was strong enough to leave the inn she cried bitterly because she could not understand that he had to go and find the Black Knight and slay him.

Through many months, under hot sun, over frosty paths, the White Knight pressed on his search, yet all the knights he met in the forest were, like himself, fairly white. They were knights of varying shades of whiteness, depending on how long they, too, had been hunting the Black Knight.

Some were sparkling white. These had just started hunting that day and irritated the White Knight by innocently asking directions to the nearest Black Knight.

Others were tattle-tale grey. And still others were so grubby, horse and rider, that the mirror in their castle would never have recognized them.

Yet the White Knight was shocked the day a knight of gleaming whiteness confronted him suddenly in the forest and with a wild whoop thundered towards him with levelled lance. The White Knight barely had time to draw his sword and, ducking under the deadly steel, plunge it into the attacker's breast.

The White Knight dismounted and kneeled beside his mortally wounded assailant, whose visor had fallen back to reveal blond curls and a youthful face. He heard the words, whispered in anguish: "Is evil then triumphant?" And holding the dead knight in his arms

*Continued*

he saw that beside the bright armour of the youth his own, besmirched by the long quest, looked black in the darkness of the forest.

His heart heavy with horror and grief, the White Knight who was white no more buried the boy, then slowly stripped off his own soiled mail, turned his grimy horse free to the forest, and stood naked and alone in the quiet dusk.

Before him lay a path which he slowly took, which led him to his castle on the edge of the forest. He went into the castle and closed the door behind him. He went to the mirror and saw that it no more gave back the White Knight, but only a middle-aged, naked man, a man who had stolen and ravished and killed in pursuit of evil.

Thereafter when he walked abroad from his castle he wore a coat of simple colours, a cheerful motley, and never looked for more than he could see. And his hair grew slowly white, as did his fine, full beard, and the people all around called him the Good White Knight.

*Eric Nicol*

## MINOR ASSIGNMENT

**Personal Response to Literature (Suggested time: approximately ½ hour)**

The allegory of the White Knight is an illustration of the process of self-discovery. In his attempt to fulfil his role, the White Knight discovers that he is not what he thought he was.

Choose a brief quotation from "The White Knight" that you can associate with self-discovery and explain why it is meaningful to you.

### PLANNING AND DRAFTING

There is additional space for Planning and Drafting on pages 6 and 8.

**Minor Assignment**

**Personal Response to Literature**

## REVISED WORK

There is additional space for Revised Work on pages 7 and 9.

**Minor Assignment**

**Personal Response to Literature**

PLANNING AND DRAFTING

There is additional space for Planning and Drafting on page 8.

**Minor Assignment**

**Personal Response to Literature**

## REVISED WORK

There is additional space for Revised Work on page 9.

**Minor Assignment**

**Personal Response to Literature**

## PLANNING AND DRAFTING

**Minor Assignment**

**Personal Response to Literature**

## REVISED WORK

## MAJOR ASSIGNMENT

### Literature Composition (Suggested time: approximately 1½ to 2 hours)

Self-discovery involves the process by which individuals perceive the truth about themselves and their place in the world. A literary example of the process of self-discovery is ''The White Knight,'' in which Eric Nicol uses symbol and irony to suggest the idea that experience provides insight.

**Write a composition based on other literature you have studied that examines self-discovery. What idea does the author develop regarding self-discovery? Provide specific details from the literature you have chosen that will support and develop your controlling idea.**

### Guidelines for Writing

- **CHOOSE** your selection from relevant short stories, novels, plays, poems, other literature, or films that you have studied in your high school English classes. You may choose to discuss more than one selection.
- **FOCUS** your composition on the topic. Provide only those details that support your controlling idea. You may wish to consider discussing the significance of the author's use of such elements as character development, setting, irony, contrast, conflict, imagery, symbol, etc.
- **ORGANIZE** your composition so that your ideas are clearly and coherently developed.

**Major Assignment**

**Literature Composition**

INITIAL PLANNING

Space is provided here for you to identify the literature you plan to use and to state your controlling idea or thesis.

Author and Title ____________________

____________________

____________________

____________________

Controlling Idea
or Thesis
Statement ____________________

____________________

____________________

____________________

____________________

____________________

There is additional space for Planning and Drafting on even-numbered pages.

**Major Assignment**

**Literature Composition**

# PLANNING AND DRAFTING

**Major Assignment**

**Literature Composition**

REVISED WORK

There is additional space for Revised Work on odd-numbered pages.

**Major Assignment**

**Literature Composition**

# PLANNING AND DRAFTING

**Major Assignment**

**Literature Composition**

REVISED WORK

171

# CREDITS

Eric Nicol. "The White Knight" from *Shall We Join the Ladies* (McGraw-Hill Ryerson Limited). Reprinted by permission of McGraw-Hill Ryerson Limited.

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M1 ☐

M2 ☐

M3 ☐

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ENGLISH 30: PART A

**NAME:** (LAST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ (FIRST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐

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ENGLISH 30: PART A

READINGS BOOKLET

# GRADE 12
# DIPLOMA EXAMINATION

## English 30

Part B: Reading (Multiple Choice)

January 1990

Alberta

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# GRADE 12 DIPLOMA EXAMINATION
# ENGLISH 30

## Part B: Reading (Multiple Choice)

## READINGS BOOKLET

### GENERAL INSTRUCTIONS

Part B of the English 30 Diploma Examination has 70 questions in the Questions Booklet and seven reading selections in the Readings Booklet.

**BE SURE THAT YOU HAVE AN ENGLISH 30 QUESTIONS BOOKLET AND AN ENGLISH 30 READINGS BOOKLET.**

**YOU HAVE 2 HOURS TO COMPLETE THIS EXAMINATION.**

You may **NOT** use a dictionary, thesaurus, or other reference materials.

**JANUARY 1990**

**I. Questions 1 to 9 in your Questions Booklet are based on this poem.**

## SMILES CAFE

This is what you can hope for,
to know one thing well
Something you have learned
to crawl inside
on nights like this

Coffee and chips, the steady
drumming of rain outside
He sits at a booth
gently touching the scars on his hands,
his blunt calloused fingers
Scars of the ninety pound halibut
raked over the side, punctures
from frayed cable and the endless
jabs of hooks
Nails worn to nothing from twisting
against stubborn pumps and engine bolts
The halibut skates[1] laid out like prayers
on the dark, rolling bottom
Years of fish scales, like a second skin,
his first one
too thin for this work,
for the grease, cold and diesel

This is what you can hope for
when the fish are gone,
the boats taken by conglomerates
and banks,
the last of the wild salmon
gutted on factory boats
To have known one thing well,
instinctive,
like the ache still in his bones,
the scars that map his body
Something that can't be lost for money,
that no one can take with legislation
Skills no one will know again

Tonight, the bright cafe,
the soft murmur of voices around him
He follows these scars
with his fingers,
an old, familiar chart

*Andrew Wreggitt*,
contemporary Canadian poet

[1] halibut skates — a family of fish that has a flattened body with fins that form winglike extensions

**II. Questions 10 to 16 in your Questions Booklet are based on this excerpt.**

## from HOW IT FEELS TO BE SHOT

*This excerpt is taken from a book based on the author's experience in the Spanish Civil War (1936-1939).*

At nights we patrolled as usual — more dangerous than it used to be, because the Fascist trenches were better manned and they had grown more alert; they had scattered tin cans just outside their wire and used to open up with the machine-guns when they heard a clank. In the daytime we sniped from no man's land. By crawling a hundred yards you could get to a ditch, hidden by tall grasses, which commanded a gap in the Fascist parapet. We had set up a rifle-rest in the ditch. If you waited long enough you generally saw a khaki-clad figure slip hurriedly across the gap. I had several shots. I don't know whether I hit anyone — it is most unlikely; I am a very poor shot with a rifle. But it was rather fun, the Fascists did not know where the shots were coming from, and I made sure I would get one of them sooner or later. However, the dog it was that died[1] — a Fascist sniper got me instead. I had been about ten days at the front when it happened. The whole experience of being hit by a bullet is very interesting and I think it is worth describing in detail.

It was at the corner of the parapet, at five o'clock in the morning. This was always a dangerous time, because we had the dawn at our backs, and if you stuck your head above the parapet it was clearly outlined against the sky. I was talking to the sentries preparatory to changing the guard. Suddenly, in the very middle of saying something, I felt — it is very hard to describe what I felt, though I remember it with the utmost vividness.

Roughly speaking it was the sensation of being *at the centre* of an explosion. There seemed to be a loud bang and a blinding flash of light all round me, and I felt a tremendous shock — no pain, only a violent shock, such as you get from an electric terminal: with it a sense of utter weakness, a feeling of being stricken and shrivelled up to nothing. The sand-bags in front of me receded into immense distance. I fancy you would feel much the same if you were struck by lightning. I knew immediately that I was hit, but because of the seeming bang and flash I thought it was a rifle nearby that had gone off accidentally and shot me. All this happened in a space of time much less than a second. The next moment my knees crumpled up and I was falling, my head hitting the ground with a violent bang which, to my relief, did not hurt. I had a numb, dazed feeling, a consciousness of being very badly hurt, but no pain in the ordinary sense.

The American sentry I had been talking to had started forward. "Gosh! Are you hit?" People gathered round. There was the usual fuss — "Lift him up! Where's he hit? Get his shirt open!" etc., etc. The American called for a knife to cut my shirt open. I knew that there was one in my pocket and tried to get it out, but discovered that my right arm was paralysed. Not being in pain, I felt a vague satisfaction. This ought to please my wife, I thought; she had always wanted me to be wounded, which would save me from being killed when the great

*Continued*

---

[1] the dog it was that died — from "An Elegy on the Death of a Mad Dog" by Oliver Goldsmith. The dog went mad to kill the man but the dog it was that died.

battle came. It was only now that it occurred to me to wonder where I was hit, and how badly; I could feel nothing, but I was conscious that the bullet had struck me somewhere in the front of the body. When I tried to speak I found that I had no voice, only a faint squeak, but at the second attempt I managed to ask where I was hit. In the throat, they said. Harry Webb, our stretcher-bearer, had brought a bandage and one of the little bottles of alcohol they gave us for field-dressings. As they lifted me up a lot of blood poured out of my mouth, and I heard a Spaniard behind me say that the bullet had gone clean through my neck. I felt the alcohol, which at ordinary times would sting like the devil, splash on to the wound as a pleasant coolness.

They laid me down again while somebody fetched a stretcher. As soon as I knew that the bullet had gone clean through my neck I took it for granted that I was done for. I had never heard of a man or an animal getting a bullet through the middle of the neck and surviving it. The blood was dribbling out of the corner of my mouth. "The artery's gone," I thought. I wondered how long you last when your carotid artery is cut; not many minutes, presumably. Everything was very blurry. There must have been about two minutes during which I assumed that I was killed. And that too was interesting — I mean it is interesting to know what your thoughts would be at such a time. My first thought, conventionally enough, was for my wife. My second was a violent resentment at having to leave this world which, when all is said and done, suits me so well. I had time to feel this very vividly. The stupid mischance infuriated me. The meaninglessness of it! To be bumped off, not even in battle, but in this stale corner of the trenches, thanks to a moment's carelessness! I thought, too, of the man who had shot me — wondered what he was like, whether he was a Spaniard or a foreigner, whether he knew he had got me, and so forth. I could not feel any resentment against him. I reflected that as he was a Fascist I would have killed him if I could, but that if he had been taken prisoner and brought before me at this moment I would merely have congratulated him on his good shooting. It may be, though, that if you were really dying your thoughts would be quite different.

They had just got me on to the stretcher when my paralysed right arm came to life and began hurting damnably. At the time I imagined that I must have broken it in falling; but the pain reassured me, for I knew that your sensations do not become more acute when you are dying. I began to feel more normal and to be sorry for the four poor devils who were sweating and slithering with the stretcher on their shoulders. It was a mile and a half to the ambulance, and vile going, over lumpy, slippery tracks. I knew what a sweat it was, having helped to carry a wounded man down a day or two earlier. The leaves of the silver poplars which, in places, fringed our trenches brushed against my face; I thought what a good thing it was to be alive in a world where silver poplars grow. But all the while the pain in my arm was diabolical, making me swear and then try not to swear, because every time I breathed too hard the blood bubbled out of my mouth.

The doctor re-bandaged the wound, gave me a shot of morphia, and sent me off to Sietamo.

*George Orwell,*
British essayist and novelist
1903-1950

**III. Questions 17 to 26 in your Questions Booklet are based on this excerpt from the story "Print Dresses."**

### from PRINT DRESSES

*The narrator's grandmother has recently died and the narrator has travelled to her grandmother's house to settle affairs there. She addresses her thoughts to her husband, who is absent.*

In the dresser of this upstairs room there is hand-tatted lace that once was precisely stitched to necklines of dark dresses so that, when necessary, it could be snipped away and gently squeezed in a solution of pure soap flakes and warm water, then left to dry flat on a towel where the sunlight struck it. The sunlight and the soap have made it yellow.

In a lidded cardboard box in the closet, there are balls of brown string, wound as though they'd come that way and had not instead been collected from parcels, and rolled newspapers, and from the grasses and roads where they'd been discarded, and knotted end to end for later use on other packages. The ravelling of these brown strings would cross the yard and the gravel road in front, would wind through the ditch of Queen Anne's lace and into the rows of hollyhocks across the way in the garden of my aunts.

I can see my aunts through this upper-storey windowpane: they are sitting in two canvas lawn chairs in the shade of their small green-shingled house and they're resting for a moment between the weeding of the vegetable garden and the making of the tea. The lazy nods and dips of their straw sunbonnets do not suggest the intensity of their conversation.

They want me to come out. I've seen them in my garden in the early morning when they supposed I was asleep. I've heard them rattle at my doors and windows. They did not intend, when they handed me the key, that I'd come in and stay.

I didn't intend it either. There are things I should be doing: for my work, my home, for you. There are things I ought to be doing here as well, that I have not yet done.

Stacked on an upper closet shelf in this room which my aunts and my mother outgrew, leaving a storage space, there are dozens of photographs which I have lifted, dusted and returned. There are photographs of young and handsome men in suits and ties, of women with lace around their necks. There are people who, like my aunts and my mother, knew how to age with grace and self-respect and not a moment of wasted time.

There is a photograph of twelve young women in identical robes of white: some are kneeling, others standing, two sitting on carved chairs. The women are startlingly beautiful, their hair soft and flowing or caught with hairpins up behind their heads. They are touching one another, each of them with one hand on another woman's shoulder and another at her elbow. This is the picture of a graduation class or the cast of a midsummer play: it's impossible to tell, just as I cannot be certain which of the women is my grandmother.

My aunts would be able to tell me, if I asked them. They probably hoped for that: that I would carry pieces of this house across the way and sit in the shade with them while they disclosed the past. Or that I would call from this

*Continued*

upper-storey window from time to time, bidding them into their mother's house to explain what I was holding.

What they intended was that I'd discharge it all within a day or two, taking the things I wanted for our apartment in the city and packing the rest of it into boxes which they'd left in the woodshed for my convenience. They assumed I'd clean the house from top to bottom in readiness for the agents and the movers. I know what they intended and assumed: I've known for weeks that the house was sitting empty, waiting for my sense of duty to mature. They are, my mother and my aunts, too old for such emotional and back-breaking labour as disposing of their mother.

Grandmother's bedroom is sparsely furnished and as tidy as she left it. All it required was a little dusting. The thin coverlet, quilted and nearly white, is folded and tucked to conceal the embroidered linen, to save the bedclothes from dust and light.

On her dresser are the bone-backed brush and mirror which she used so dextrously, one in each hand, one hundred strokes through her thin grey hair each night. From her window, which faces away from the house of my aunts, she saw an open field and knew the spit of snakes in the tall weeds, the sticky cling of cobwebs in the trees. She knew them, but left them, too busy with this house for idle wandering: that was for children, the recollections of her own childhood serving up suggestions of blind man's bluff or hide and seek to bored daughters or, later, to her only grandchild. More often, aggravated by such a word as "boredom," she'd send them out to pinch suckers from tomato plants or to hang the wash, insisting on a hat to keep away the sun.

And silences. She expected that the house would be as silent as it is this afternoon no matter how many of us were in it, as she took her one hour's rest exactly with a black stocking over her clouded eyes to keep out light. And so it was.

I think that you would like to live here, for a while. You'd find this old house picturesque, if a trifle small, and would immediately set to work improving it with vertical blinds and bright, bold wallpaper. You'd find a place for a dishwasher and you'd cover the hardwood floors with acrylic, the roof with cedar shakes. Your radio alarm clock would go on the little painted table beside the bed. The table would have to go, eventually. So would the bed.

You'd ask me to stop winding the clock on the mantelpiece downstairs because the bonging of the quarter hours would drive you to distraction.

My aunts have gone into their house. Even the exasperation of my being shut in here will not keep them from getting their tea by the appointed hour. With it, they'll have a biscuit each and plan their supper of aspic and bean salad and sweet brown bread, baked before noon and left to cool on wire racks on the kitchen table's oilcloth. They will wonder, as they set their table with linen napkins and plates and glasses (as their mother always did), what I am eating here.

At the beginning I ate nothing. There were only dead insects where the cornstarch and flour used to be and I wasn't hungry anyway. But then I found her well-used cookbooks that she'd made herself from empty scrapbooks, and her round script was steadier than I'd ever known it. I remembered: johnnycake with sweet apple jelly; a white sauce thick on soft macaroni; last week's buns steamed back into edibility. Beside some recipes she'd glued a black-and-white of the woman who'd shared it with her. Martha Beardsley (Pineapple Upside Down Cake,

*Continued*

1941), wears a black one-piece bathing suit and sits by a grey lake with one hand up to hold her damp hair away from her face. I do not recall her, though I do recall her cake.

My grandmother was not the cook that you are, with your pepper steaks and florentined eggs and fresh kiwi fruit from the market. She didn't waste a cent.

I scoop tea leaves from the cannister and wait for the kettle to whistle. Here by the kitchen door I can see out the front window and also out the back: it's a house constructed for people who watch from kitchens. The clock bongs twice: four-thirty. The office will be emptying of everyone but Jack, who'll have to do my work as well as his. And you'll be contemplating a game of raquetball with Harold, followed by an imported beer. The beer will make you amorous, and you'll remember I'm away.

In the pantry and then in the rootcellar, when at last I thought to look there, I found the sealed jars full of fruit and pickled meats, the flour and sugar in large glass jars with rubber seals so tight that I despaired of opening them, cans of condensed milk and tubs of lard.

I've learned to use yeast again, and to soak the raisins in milk before I add them to the batter. I've recalled bread pudding. I wish that I had eggs.

I clean my clothes in the morning and myself at night, as Grandmother always did. I wash the dresses and the underthings on the scrubboard which I found beneath the sink. I leave them to dry on the wooden clothes rack in the bathroom.

I wash my hair in the sink, wringing the excess water out before I wrap it in a towel. Already it seems longer, silkier. I iron when it's not too warm. There isn't any urgency to that for her cotton dresses fit me, and she had several. Their prints, small and blue or mauve, suit me better than the things I brought from the city, and I've stowed all of them away in my suitcase which is in the front hall closet. I'd like to put it out on the verandah and let the aunts decide what to do with it.

My grandmother eludes me. I've looked for her as I swept her auburn corners, as I dusted her varnished wood. I've peered at the hand which held the pan and moved the flannel cloth, sought the fine grain of her wrist, but I haven't found her. I've stood at the foot of her bed when I rose in the morning and studied the indent in the pillow but it does not belong to her elegant white head. She isn't here. If she were, I'd take her bird bones against my chest and say that she worked well, that there was a reason for it after all.

*Mary W. Riskin*,
contemporary Canadian writer

**IV. Questions 27 to 40 in your Questions Booklet are based on this excerpt from the play *Caesar and Cleopatra*.**

## from CAESAR AND CLEOPATRA by George Bernard Shaw

CHARACTERS:

Cleopatra — sixteen-year-old Queen of Egypt
Caesar — Julius Caesar, head of the Roman Empire
Lucius Septimius — a Roman now living in Egypt, murderer of the Roman leader, Pompey
Rufio — a Roman officer, Caesar's aide
Apollodorus — a Sicilian nobleman
Britannus — a Briton, secretary to Caesar

*The palace at Alexandria. Cleopatra is relying on Caesar to establish her on the throne over her younger brother, Ptolemy. The Egyptians are resisting the Roman invasion.*
*Pothinus, who was Ptolemy's guardian, has just been secretly killed on the orders of Cleopatra. Outside, an uproar from the crowds is being investigated.*

(CLEOPATRA, *resenting* CAESAR's *submitting to* RUFIO's *advice, leaves the table and sits down on the bench in the colonnade.*)

**CLEOPATRA**: Why do you allow Rufio to treat you so? You should teach him his place.

**CAESAR**: Teach him to be my enemy, and to hide his thoughts from me as you are now hiding yours.

**CLEOPATRA** (*Her fears returning*): Why do you say that, Caesar? Indeed, indeed, I am not hiding anything. You are wrong to treat me like this. (*She stifles a sob.*) I am only a child; and you turn into stone because you think some one has been killed. I cannot bear it. (*She purposely breaks down and weeps. He looks at her with profound sadness and complete coldness. She looks up to see what effect she is producing. Seeing that he is unmoved, she sits up, pretending to struggle with her emotion and to put it bravely away.*) But there: I know you hate tears: you shall not be troubled with them. I know you are not angry, but only sad; only I am so silly, I cannot help being hurt when you speak coldly. Of course you are quite right: it is dreadful to think of anyone being killed or even hurt; and I hope nothing really serious has — (*Her voice dies away under his contemptuous penetration.*)

**CAESAR**: What has frightened you into this? What have you done? (*A trumpet sounds on the beach below.*) Aha! that sounds like the answer.

**CLEOPATRA** (*Sinking back trembling on the bench and covering her face with her hands*): I have not betrayed you, Caesar: I swear it.

**CAESAR**: I know that. I have not trusted you. (*He turns from her, and is about to go out when* APOLLODORUS *and* BRITANNUS *drag in* LUCIUS SEPTIMIUS *to him.* RUFIO *follows.* CAESAR *shudders.*) Again, Pompey's murderer!

**RUFIO**: The town has gone mad, I think. They are for tearing the palace down

*Continued*

and driving us into the sea straight away. We laid hold of this renegade in clearing them out of the courtyard.

**CAESAR**: Release him. (*They let go his arms.*) What has offended the citizens, Lucius Septimius?

**LUCIUS**: What did you expect, Caesar? Pothinus was a favorite of theirs.

**CAESAR**: What has happened to Pothinus? I set him free, here, not half an hour ago. Did they not pass him out?

**LUCIUS**: Ay, through the gallery arch sixty feet above ground, with three inches of steel in his ribs. He is as dead as Pompey. We are quits now, as to killing — you and I.

**CAESAR** (*Shocked*): Assassinated! — our prisoner, our guest! (*He turns reproachfully on* RUFIO.) Rufio —

**RUFIO** (*Emphatically — anticipating the question*): Whoever did it was a wise man and a friend of yours (CLEOPATRA *is greatly emboldened*); but none of us had a hand in it. So it is no use to frown at me. (CAESAR *turns and looks at* CLEOPATRA.)

**CLEOPATRA** (*Violently — rising*): He was slain by order of the Queen of Egypt. I am not Julius Caesar the dreamer, who allows every slave to insult him. Rufio has said I did well: now the others shall judge me too. (*She turns to the others.*) This Pothinus sought to make me conspire with him to betray Caesar to Achillas and Ptolemy. I refused; and he cursed me and came privily to Caesar to accuse me of his own treachery. I caught him in the act; and he insulted me — me, the Queen! to my face. Caesar would not avenge me: he spoke him fair and set him free. Was I right to avenge myself? Speak, Lucius.

**LUCIUS**: I do not gainsay it. But you will get little thanks from Caesar for it.

**CLEOPATRA**: Speak, Apollodorus. Was I wrong?

**APOLLODORUS**: I have only one word of blame, most beautiful. You should have called upon me, your knight; and in fair duel I should have slain the slanderer.

**CLEOPATRA** (*Passionately*): I will be judged by your very slave, Caesar. Britannus: speak. Was I wrong?

**BRITANNUS**: Were treachery, falsehood, and disloyalty left unpunished, society must become like an arena full of wild beasts, tearing one another to pieces. Caesar is in the wrong.

**CAESAR** (*With quiet bitterness*): And so the verdict is against me, it seems.

**CLEOPATRA** (*Vehemently*): Listen to me, Caesar. If one man in all Alexandria can be found to say that I did wrong, I swear to have myself crucified on the door of the palace by my own slaves.

**CAESAR**: If one man in all the world can be found, now or forever, to know that you did wrong, that man will have either to conquer the world as I have, or be crucified by it. (*The uproar in the streets again reaches them.*) Do you hear? These knockers at your gate are also believers in vengeance and in stabbing. You have slain their leader: it is right that they shall slay you. If you doubt it, ask your four counsellors here. And then in the name of that right (*he emphasizes the word with great scorn*) shall I not slay them for murdering their Queen, and be slain in my turn by their countrymen as the invader of their fatherland? Can Rome do less then than slay these slayers, too, to show the world how Rome avenges her sons and her honor. And so,

*Continued*

to the end of history, murder shall breed murder, always in the name of right and honor and peace, until the gods are tired of blood and create a race that can understand. (*Fierce uproar.* CLEOPATRA *becomes white with terror.*) Hearken, you who must not be insulted. Go near enough to catch their words: you will find them bitterer than the tongue of Pothinus. (*Loftily, wrapping himself up in an impenetrable dignity.*) Let the Queen of Egypt now give her orders for vengeance, and take her measures for defence: for she has renounced Caesar. (*He turns to go.*)

**CLEOPATRA** (*Terrified, running to him and falling on her knees*): You will not desert me, Caesar. You will defend the palace.

**CAESAR**: You have taken the powers of life and death upon you. I am only a dreamer.

**CLEOPATRA**: But they will kill me.

**CAESAR**: And why not?

**CLEOPATRA**: In pity —

**CAESAR**: Pity! What! Has it come to this so suddenly, that nothing can save you now but pity? Did it save Pothinus?

(*She rises, wringing her hands, and goes back to the bench in despair.* APOLLODORUS *shows his sympathy with her by quietly posting himself behind the bench. The sky has by this time become the most vivid purple, and soon begins to change to a glowing pale orange, against which the colonnade and the great image show darklier and darklier.*)

**RUFIO**: Caesar: enough of preaching. The enemy is at the gate.

**CAESAR** (*Turning on him and giving way to his wrath*): Ay; and what has held him baffled at the gate all these months? Was it my folly, as you deem it, or your wisdom? In this Egyptian Red Sea of blood, whose hand has held all your heads above the waves? (*Turning to* CLEOPATRA.) And yet, when Caesar says to such an one, "Friend, go free," you, clinging for your little life to my sword, dare steal out and stab him in the back? And you, soldiers and gentlemen, and honest servants as you forget that you are, applaud this assassination, and say "Caesar is in the wrong." By the gods, I am tempted to open my hand and let you all sink into the flood.

**CLEOPATRA** (*With a ray of cunning hope*): But, Caesar, if you do, you will perish yourself. (CAESAR's *eyes blaze.*)

**RUFIO** (*Greatly alarmed*): Now, by great Jove, you filthy little Egyptian rat, that is the very word to make him walk out alone into the city and leave us here to be cut to pieces. (*Desperately, to* CAESAR.) Will you desert us because we are a parcel of fools? I mean no harm by killing: I do it as a dog kills a cat, by instinct. We are all dogs at your heels; but we have served you faithfully.

**CAESAR** (*Relenting*): Alas, Rufio, my son, my son: as dogs we are like to perish now in the streets.

**APOLLODORUS** (*At his post behind* CLEOPATRA's *seat*): Caesar, what you say has an Olympian ring in it: it must be right; for it is fine art. But I am still on the side of Cleopatra. If we must die, she shall not want the devotion of a man's heart nor the strength of a man's arm.

**CLEOPATRA** (*Sobbing*): But I don't want to die.

**CAESAR** (*Sadly*): Oh, ignoble, ignoble!

**LUCIUS** (*Coming forward between* CAESAR *and* CLEOPATRA): Hearken to me,

*Continued*

Caesar. It may be ignoble; but I also mean to live as long as I can.

**CAESAR**: Well, my friend, you are likely to outlive Caesar. Is it any magic of mine, think you, that has kept your army and this whole city at bay for so long? Yesterday, what quarrel had they with me that they should risk their lives against me? But today we have flung them down their hero, murdered; and now every man of them is set upon clearing out this nest of assassins — for such we are and no more. Take courage then; and sharpen your sword. Pompey's head has fallen; and Caesar's head is ripe.

**APOLLODORUS**: Does Caesar despair?

**CAESAR** (*With infinite pride*): He who has never hoped can never despair. Caesar, in good or bad fortune, looks his fate in the face.

*George Bernard Shaw*,
British dramatist and critic,
1856-1950

**V. Questions 41 to 48 in your Questions Booklet are based on this excerpt from the play *Henry VI*, Part 3.**

### from HENRY VI, Part 3, Act II, Scene v

*The play is set during the War of the Roses. The opposing parties are the great royal houses of York and Lancaster, who are identified by the emblems of the white rose of York and the red rose of Lancaster.*

*King Henry's forces of the House of Lancaster have just been soundly defeated. King Henry comes to an open place near the battlefield and contemplates the futility of war.*

**KING HENRY**: This battle fares like to the morning war,
When dying clouds contend with growing light,
What time the shepherd, blowing of his nails,
Can neither call it perfect day nor night.
Now sways it this way, like a mighty sea
Forc'd by the tide to combat with the wind;
Now sways it that way, like the self-same sea
Forc'd to retire by fury of the wind.
Sometime the flood prevails, and then the wind;
Now one the better, then another best;
Both tugging to be victors, breast to breast,
Yet neither conqueror nor conquered;
So is the equal poise of this fell war.
Here on this molehill will I sit me down.
To whom God will, there be the victory! . . . .
(*Enter a* SON *that hath killed his father, dragging in the dead body*)
**SON**: Ill blows the wind that profits nobody.
This man whom hand to hand I slew in fight
May be possessed with some store of crowns;
And I, that haply[1] take them from him now,
May yet ere night yield both my life and them
To some man else, as this dead man doth me.
Who's this? O God! it is my father's face,
Whom in this conflict I unwares have kill'd.
O heavy times, begetting such events!
From London by the King was I press'd forth;
My father, being the Earl of Warwick's man,
Came on the part of York, press'd by his master;
And I, who at his hands receiv'd my life,
Have by my hands of life bereaved him.
Pardon me, God, I knew not what I did!
And pardon, father, for I knew not thee! . . . .
**KING HENRY**: O piteous spectacle! O bloody times!

*Continued*

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[1] haply — by chance

Whiles lions war and battle for their dens,
Poor harmless lambs abide their enmity.
Weep, wretched man, I'll aid thee tear for tear;
And let our hearts and eyes, like civil war,
Be blind with tears, and break o'ercharg'd with grief.
(*Enter a* FATHER, *bearing his son*)
**FATHER**: Thou that so stoutly hast resisted me,
Give me thy gold, if thou hast any gold,
For I have bought it with an hundred blows.
But let me see: is this our foeman's face?
Ah no, no, no, it is mine only son! . . . .
O, pity, God, this miserable age!
What stratagems, how fell, how butcherly,
Erroneous, mutinous, and unnatural,
This deadly quarrel daily doth beget! . . .
**KING HENRY**: O, pity, pity, gentle heaven, pity!
The red rose and the white are on his face,
The fatal colours of our striving houses;
The one his purple blood right well resembles,
The other his pale cheeks, methinks, presenteth.
Wither one rose, and let the other flourish;
If you contend, a thousand lives must wither.
**SON**: How will my mother for a father's death
Take on with me and ne'er be satisfi'd!
**FATHER**: How will my wife for slaughter of my son
Shed seas of tears and ne'er be satisfi'd!
**KING HENRY**: How will the country for these woeful chances
Misthink the King and not be satisfi'd!
**SON**: Was ever son so ru'd a father's death?
**FATHER**: Was ever father so bemoan'd his son?
**KING HENRY**: Was ever king so griev'd for subjects' woe?
Much is your sorrow; mine, ten times so much.
**SON**: I'll bear thee hence, where I may weep my fill.
(*Exit with the body*)
**FATHER**: These arms of mine shall be thy winding-sheet;
My heart, sweet boy, shall be thy sepulchre, . . .
I'll bear thee hence; and let them fight that will,
For I have murdered where I should not kill.
(*Exit with the body*)
**KING HENRY**: Sad-hearted men, much overgone with care,
Here sits a king more woeful than you are.

*William Shakespeare*

**VI. Questions 49 to 62 in your Questions Booklet are based on this essay.**

*The following essay comments on the ongoing political and religious conflict in Northern Ireland.*

## BELFAST: THE ALLURE OF THE 'TROUBLES'

Everyone who is not terminally bored with Northern Ireland seems to be looking for a way to help the people there out of their plight. Is it not presumptuous to do their thinking for them? Any citizen who wants to get out of his ''plight'' has to change the way he acts or votes. Yet no one there does. Therefore it seems sensible to assume he can't see how to or doesn't want to. It is a strange place where peace is unknown in the lifetime of almost half the population, but Northern Ireland fills the bill; and like everyone else, people there prefer the familiar. ''The people do not believe in change,'' writes one experienced correspondent, ''neither in its possibility, nor in its desirability.'' Living in perpetual war may seem unthinkable to someone who knows it only in the abstract; but in the particular, war has something to be said for it, especially if it is your own. Of course everyone says he wants peace — it would be crazy to suggest otherwise — but peace only on his own impossible terms. Otherwise he wants war.

I once introduced an ex-paramilitary friend to my daughter, who would have nothing to do with him: ''Those kinds of people really frighten me.'' What worried her, she said afterwards, was that ''he's crossed a line. He's done something immoral. I don't mean illegal. It's like what I'm reading at school. When Hamlet kills Polonius and overcomes all his inhibitions, somehow his principles have lost their original meaning. And he's so proud of himself; he screams, I've done it! I've done it!'' She thought that if people could kill so readily for a cause, they might ''lose the grip they have over themselves, over right and wrong. They could kill their family. They could kill you. It would mean nothing.''

I told my friend, after some thought, what she had said. ''She's right'' was his answer.

Fighting a war is certainly a better *raison d'être* than none at all, which is what confronts so many people in the British Isles of the 1980s. What is so enviable about the ''peace'' the rest of us live in? What is preferable about enduring the unemployment, riots, crime, welfare cuts, and economic hopelessness of the Northern Irish without their reasons for getting up in the morning? Their grand cause, their commitment, sense of purpose, *clarity*. ''Something *great* got hold of you,'' said an eighty-year-old Englishman of World War II. ''Even clear-cut suffering is better than long-term depression — it gives you something to kick off against.'' Being in Belfast is like being in a magnetic field: everything points one way or the other and lines up.

War on a parochial[1] scale has a certain appeal in a world where nuclear annihilation looms over all of us, whatever the color of our passports. The war seems to have concentrated minds in Northern Ireland well away from such nightmares. Reading a thoughtful piece by Michael Hall, a popular historian in Ulster, I encounter this passage: '' . . . isn't it totally farcical, given the dangerous

*Continued*

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[1] parochial — of a parish, confined to a narrow area

state our society is now in, that the question of how we avoid the possible catastrophe isn't being tackled at all by the educational establishments?" To me, reading this in London, the only "possible catastrophe" is nuclear annihilation. I had to read much further before realizing he was talking about something else. At most, only three or four of all the people I met in Belfast alluded to nuclear war as a concern, and then only glancingly. A Sinn Feiner,[2] when pushed, said "it would solve our problem anyway, 'cause it would wipe out the Brits." It may well be a delusion to avoid the issue, but it must also be a relief.

Another aspect of war is how significant it can make you feel in the world picture. People in Northern Ireland feel that they really count yet, considering there are only a million and a half of them, the attention their altercation earns in the media is preposterous. Belfast is chock-a-block with journalists, academics, social scientists, photographers, every kind of pundit. Interviewing the most out-of-the-way people, I got used to the idea that I was the fourth interviewer they'd spoken to that week. Sometimes I felt as if I were part of a delegation visiting China; wherever you go, the seats are still warm from the last group. Of course China contains a quarter of the world's population.

None of this can be held against the people of Belfast: Who wouldn't enjoy being in such demand? If you have to be unemployed, it is a great solace to have experts on your doorstep forever asking you how it feels. You are like the victim of a disease who is given only a placebo yet thrives because of the attention.

There is also, for those who enjoy that sort of thing, the excitement of participating in an atrocity and then going home to watch it replayed on the six o'clock news. Does anyone watch television news the way people do in Belfast? Even in homes where there isn't enough to eat there is always a very large color TV playing in the corner of the living room. That way people are always ready for a local flash. As for the flashers, you get the feeling that Northern Irish events are almost designed to be televised: precision-targeted enough not to panic the cameramen and sufficiently imaginative to sustain their interest.

One of the more ghoulish sets of statistics to emerge from the "Troubles" indicates an inverse relation between the homicide and suicide rates — make of this what you will. The incidence of suicide fell by half in the early 1970s and has grown only gradually since then. The same is true of the rate of depression. These people, when asked, turn out to be, incredible though it seems, some of the happiest on earth. According to a Gallup poll "values survey" conducted worldwide in the mid-1980s, 39 percent of the people of Northern Ireland described themselves as "very happy" (compared, for example, to 10 percent of West Germans and Italians, and 15 percent of Japanese). Perhaps what makes them happy is a fierce commitment to a cause transcending themselves. The world of my own dreams has no war in it. But what if you are stuck between war and a world with no dreams?

*Sally Belfrage,*
contemporary British writer

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[2] Sinn Feiner — member of the group of extreme Irish Nationalists

**VII. Questions 63 to 70 in your Questions Booklet are based on this excerpt from the novel *Grain*.**

## from GRAIN

The first year of the war was the hardest for Gander. Before another season's crop was being threshed the world — the Allies' world, at any rate — had awakened to the quite obvious fact that the war must be won by wheat. Growing wheat became a patriotic duty into which Gander fitted like a cylinder nut into a socket wrench. He could grow wheat, and none of that "form fours"[1] nonsense about it. True, there were still some who refused to see in the growing of wheat the highest expression of service, some even who were frank enough to suggest that the prospect of a high price had more to do with the sudden increase in acreage than had any patriotic motive. But Gander avoided argument and kept on with his ploughing, his seeding, his harvesting and threshing. He, who had been reared on the plains with himself for a companion, more than ever receded within himself. He avoided company, he avoided discussion, he avoided trips to Plainville. As a matter of custom he continued going to church at Willow Green, but even there sometimes found eyes that bored him through, and sent him home in a tempest of self-excuse.

One of the difficult times was when Tommy Burge enlisted. The Burges gave a party for their soldier son, and Gander, as one of the nearest neighbours and friends of the family, must of course attend. He willingly would have denied himself that pleasure; not even the prospect of dancing with Jo Burge could balance the disadvantages under which he would be placed. But he felt he ought to go; he owed that much to Tommy, and he could cover up a little by taking his sister Minnie as his guest.

"Well, Minn," he remarked with forced casualness at noon that day, "how'd you like to go to Burges' dance tonight?"

Minnie, now a girl of fifteen or sixteen, and beautiful even to her brother, blushed pink under her bronze hair.

"I'm going," she said. "With Walter Peters."

Peters! The boy whom Gander had saved from the separator![2] Oh! So he must go alone.

"Darn it all, I don' want to go," he at last confessed to himself. "It's goin' to be a hot night, an' I guess I ain't much of a dancer, anyway." The answer he had given the sergeant came to his mind, and he smiled, a little bitterly. There would be a number of fellows there in uniform, and he — he would never be missed.

On Sunday he went over to the Burges', but Tommy had already gone. Jo received him at the door.

"It's stuffy inside. Would you like to walk?" she said.

"Yes — if you would."

They walked out over the school section,[3] now studded with flaming tiger

*Continued*

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[1] "form fours" — a marching formation

[2] separator — a powerful belt-driven threshing machine that separates the grain from the stalks

[3] school section — a land division set aside for a country school

lilies, and if both of them had memories they kept them to themselves. Jo was a tall, straight woman now, not bent with work as Gander was. The freckles still peered through her white, transparent skin.

"Sorry you couldn't get over the other night, Gander," she opened their conversation.

"Yes," he agreed. "Sorry, too. But I ain't much of a dancer." He hadn't meant to use that phrase again. It just slipped out.

"You always seemed to me a good dancer, Gander. . . . Tommy was sorry, too."

"Yes. . . . I didn't know he was goin' so soon, or I'd ha' come anyway."

"He's gone!" she breathed almost in a whisper. Suddenly she swayed so that Gander caught her in his arms. He supported her, helplessly wondering what to do. A tremor was running through her frame; she seemed at the point of sobbing. But presently she straightened up erect, and withdrew herself from his arms.

"I'm all right, Gander," she told him, smiling a little wanly into his face. "Just a little silly. . . . I should be very proud. . . . I *am* proud."

Her head was back now, and the summer breeze was fingering her fair hair. "I *am* proud," she repeated.

"Yes, I suppose so," said Gander, not knowing what else to say.

They walked on, charted only by some strange instinct, until they reached the grove of willows where they had lain in the shade that hot day of the cattle herding. Here the girl paused, toying with the leaves at her feet, turning them over with her toe, as though looking for something. Gander stood beside her, mute. Suddenly she turned about and seized his shoulders in her hands. Her lips were trembling, but her eyes were straight on his.

"There's only one thing could make me prouder, Gander," she said. "You know what it is."

"You mean I should join up?"

She nodded, pressing her lips together hard.

"I'm not trying to tell you what you should do, Gander," she added. "You must settle that for yourself. But *that* is what would make me proud."

"Well, I suppose," said Gander. "But there are other things, too. They want wheat, an' I'm helpin' to raise it. Besides, I promised my father an' mother not to leave 'em."

"Did they make you promise that?" There was a new note of challenge in the girl's voice.

"Well, not exactly," said Gander, in whose veins honesty flowed like blood. "But you see, Jackie is gone, an' they worry over that a lot, so I told 'em I'd stick with 'em."

She had dropped her hands from his shoulders, but still stood close to him, her eyes on his. "Gander," she said, "tell me this. Do you really *want* to go?"

Gander found himself being cornered, and he had no gift of argument. But he could be stolid. His strength was the strength of immobility.

"No, I don't!" he blurted out.

"Are you afraid?" He had not known that Jo's voice could cut like that.

"Oh, I dunno," he answered. "Guess I could take a chance with the rest."

Her tone suddenly softened. "No, I know you are not afraid," she added gently. "A boy who could do what you did — that day at the thresher —

*Continued*

isn't afraid."

Gander grunted. "Nothin' to that," he said.

"Then why is it?" she insisted.

Gander considered for a moment. "Well, I'll tell you, Jo," he answered. "I don' know very much about war, but I know somethin' about farmin', an' I figger this is where I belong. An' I ain't much for a crowd; I can get along with two or three, but in a crowd I'm out of it. I guess it's bein' on the farm like I have, I been alone so much —"

"You mean you're shy? . . . Gander, I believe you are." She laughed a soft, teasing laugh, the first she had laughed that day, and for a moment Gander had an impulse to belie his own confession. But he conquered the impulse, and so justified her conclusion.

"You would get over that," she went on. "It would do you good. And they'd straighten you up, Gander. Straighten those shoulders of yours. Put some gimp into your step. I've seen them marching in Plainville, and" — she coloured frankly now, but faced him still — "and pictured you in uniform, and thought how good you would look, straight and tall, for you *are* tall, Gander, when you straighten up —"

"Oh, I guess I'm all right," he interrupted sulkily. He had no desire to hear his defects analyzed.

"It would do you good," she repeated. "You'd get over — *that* — in a week. And besides, all the girls like to have their — their fellows — doing their bit."

The appeal of that suggestion was not to be lightly dismissed. But Gander still held his trump card. He played it.

"Besides, I got too much spirit to be a soldier," he said.

"Too much what?"

"Too much spirit. . . . I'll explain." Then he told her of the day he had seen the recruits drilling on the outskirts of Plainville. "Struttin' like prairie chickens, they were," he said, "an' that fellow bawlin' 'em out like nobody ever bawled me out an' got away with it — or ever will," he added belligerently. "Jumpin' on Fred because he went to speak to me. If I'd been Fred I'd ha' hit 'im a poke in the eye."

She was so long in answering that for a moment he thought she had found his argument beyond reply.

"So that's it?" she said, at length. "You're too good to take orders? Too big a man to be told what to do? If everybody was like you, who'd stop the enemy?"

"Well, I guess I could stop my share, if it came to that," he retorted, "an' without doin' a square dance in front o' them."

She was angry now. "Better men than you are doing the square dance, as you call it, Gander."

"Meanin' who?"

"Never mind."

"Dick Claus?"

"What if I do?"

Gander's fire was up, too. His was a slow fire, but suddenly it blazed up as though swept by a prairie wind. "Well, if you're goin' to be his pardner, you ought to learn his dance," he cried. "See — I'll show you." He seized her by

*Continued*

the arm. "Form fours! Form two-deep! 'Shun! As you were! 'Shun! As you were!" He suited grotesque movements to his commands, jerking her about until she wrenched herself from his grasp. "That's the way to lick the enemy," he explained.

She ran from him a few steps, then turned and faced him, her cheeks pink, her pale eyes ablaze. She had twitted him with his shyness, but she had no need to twit him now. Something new had broken out in Gander. She read it in his eye, in the twist of his face, in the pose of his body like an animal set to spring. A horror of fear swept her. Her cheeks went suddenly white again and she tried to run, but she seemed held in a vice. He was coming toward her, this new Gander, this man she never had seen before; coming with slow, menacing strides across the grass. For a moment he held her in his spell; then, with a scream, she regained control of her limbs and fled across the prairie like a deer.

*Robert J.C. Stead,*
twentieth century Canadian writer

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QUESTIONS BOOKLET

# GRADE 12
# DIPLOMA EXAMINATION

## English 30

Part B: Reading (Multiple Choice)

January 1990

Alberta

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## GRADE 12 DIPLOMA EXAMINATION
## ENGLISH 30

### Part B: Reading (Multiple Choice)

### QUESTIONS BOOKLET

### GENERAL INSTRUCTIONS

Part B of the English 30 Diploma Examination has 70 questions in the Questions Booklet and seven reading selections in the Readings Booklet.

**BE SURE THAT YOU HAVE AN ENGLISH 30 QUESTIONS BOOKLET AND AN ENGLISH 30 READINGS BOOKLET.**

**YOU HAVE 2 HOURS TO COMPLETE THIS EXAMINATION.**

**BE SURE TO USE AN HB PENCIL.**

You may **NOT** use a dictionary, thesaurus, or other reference materials.

On the ANSWER SHEET provided, mark the CORRECT or BEST answer for each question as shown in the example below.

**Example**

Which month has 31 days?

**A.** February
**B.** April
**C.** November
**D.** December

**Answer Sheet**

| A | B | C | D |
|---|---|---|---|
| ① | ② | ③ | ● |

Mark only one answer for each question. If you change an answer, erase your first mark completely. Answer all questions.

**JANUARY 1990**

**I. Read "Smiles Cafe" on page 1 of your Readings Booklet and answer questions 1 to 9.**

1. The context of the poem suggests that for the fisherman, the phrase "nights like this" (line 5) refers to nights that invite

   **A.** rest and relaxation
   **B.** shelter and reflection
   **C.** rebellion and remorse
   **D.** loneliness and anxiety

2. The imagery in lines 11 to 16 suggests MAINLY that the fisherman's work was

   **A.** harsh
   **B.** defeating
   **C.** complicated
   **D.** constraining

3. That the fisherman adapted to the demands of his job is directly indicated by the phrase

   **A.** "his blunt calloused fingers" (line 10)
   **B.** "Nails worn to nothing" (line 15)
   **C.** "his first one / too thin for this work" (lines 20-21)
   **D.** "the ache still in his bones" (line 31)

4. The poem's refrain "This is what you can hope for" (lines 1 and 23) refers to

   **A.** internalized knowledge and experience
   **B.** personal challenge and opportunity
   **C.** physical discomfort and scarring
   **D.** personal defeat and despair

5. The word "conglomerates" in line 25 means

   **A.** creditors
   **B.** workers' unions
   **C.** large companies
   **D.** legal procedures

*Continued*

**6.** To the fisherman, his scars represent

**A.** wasted effort
**B.** heroic struggles
**C.** confirmation of experience
**D.** shameful signs of manual labor

**7.** The line that MOST DIRECTLY suggests the fisherman's regret is

**A.** "This is what you can hope for" (line 1)
**B.** "gently touching the scars on his hands" (line 9)
**C.** "The halibut skates laid out like prayers" (line 17)
**D.** "Skills no one will know again" (line 35)

**8.** The fisherman's attitude toward the life-style of independent fishermen is MOST DIRECTLY implied by

**A.** "to crawl inside / on nights like this" (lines 4-5)

**B.** "Coffee and chips, the steady / drumming of rain outside" (lines 6-7)

**C.** "the last of the wild salmon / gutted on factory boats" (lines 27-28)

**D.** "Something that can't be lost for money, / that no one can take with legislation" (lines 33-34)

**9.** The MAJOR implication of the poem is that

**A.** mastery is its own reward
**B.** simplicity produces satisfaction
**C.** lack of status may result in bitterness
**D.** careers demanding physical endurance are rare

**II. Read the excerpt "How It Feels to Be Shot" on pages 2 and 3 of your Readings Booklet and answer questions 10 to 16.**

**10.** The ironic turning point in the speaker's early experience with warfare is indicated by the phrase

**A.** "a Fascist sniper got me instead" (lines 11-12)
**B.** "no pain in the ordinary sense" (line 32)
**C.** "I felt a vague satisfaction" (lines 37-38)
**D.** "I found that I had no voice" (lines 42-43)

**11.** The phrase "There was the usual fuss" (line 34) is used to indicate that the speaker is

**A.** sympathetic toward excitable behavior
**B.** familiar with such situations
**C.** able to recognize a crisis
**D.** casual about suffering

**12.** The speaker's attitude toward the soldier who shot him is one of

**A.** casual interest
**B.** warm friendship
**C.** righteous indignation
**D.** anxious bewilderment

**13.** The speaker's initial response to his sensation of pain is one of

**A.** indifference
**B.** confusion
**C.** despair
**D.** relief

**14.** Which of the following statements is paradoxical?

**A.** "it was the sensation of being *at the centre* of an explosion" (line 21)
**B.** "When I tried to speak I found that I had no voice" (lines 42-43)
**C.** "I took it for granted that I was done for" (lines 51-52)
**D.** "the pain reassured me" (line 72)

*Continued*

**15.** The speaker's detailed description of the incident suggests hi

**A.** preoccupation with conflict
**B.** desire to document an outstanding endeavor
**C.** tendency to dramatize unremarkable occurrences
**D.** fascination with the processes of human responses

**16.** The speaker's interest in analysing his own thoughts (lines 57-58) indicates that he is

**A.** confused
**B.** reflective
**C.** egotistical
**D.** compassionate

**III. Read the excerpt from the story "Print Dresses" on pages 4 to 6 of your Readings Booklet and answer questions 17 to 26.**

**17.** As the narrator addresses her thoughts to her husband, she sees her husband as

**A.** envying her opportunity to dwell in this house
**B.** being remote from her present experiences
**C.** wilfully challenging her motives
**D.** seeking to please her

**18.** The narrator chooses to isolate herself in the house MAINLY because she

**A.** feels antagonistic toward the aunts

**B.** recognizes the need to come to terms with her family

**C.** wishes to avoid distractions in the process of relating to her grandmother's life

**D.** recognizes the need to dispense with the relics of the past as efficiently as possible

**19.** Which statement symbolically reinforces the grandmother's elusiveness (line 117)?

**A.** "I didn't intend it either" (line 21)

**B.** "I cannot be certain which of the women is my grandmother" (lines 35-36)

**C.** "Grandmother's bedroom is sparsely furnished" (line 50)

**D.** "All it required was a little dusting" (lines 50-51)

**20.** The key to the house (line 20) may be seen as representing the key to the

**A.** family's future
**B.** aunts' reluctance
**C.** narrator's secrets
**D.** narrator's understanding

*Continued*

**21.** The narrator does not ask her aunts to disclose the past (lines 37-41) because she

**A.** wishes to discover it in her own way
**B.** is unable to communicate freely with them
**C.** knows that their information will not be reliable
**D.** is jealous of their close relationship with her grandmother

**22.** The grandmother abandoned the "open field" (line 57) because she

**A.** outgrew idleness
**B.** was repelled by nature
**C.** enjoyed solitude away from the children
**D.** wanted to set an example for the children

**23.** Early in this excerpt, the narrator suggests that her grandmother was a figure of strength; lines 122 and 123 suggest that the grandmother was

**A.** physically fragile
**B.** naturally beautiful
**C.** emotionally insecure
**D.** psychologically erratic

**24.** The narrator's description of her aunts in lines 76 to 81 indicates that she bases her impressions on

**A.** irritation
**B.** curiosity
**C.** tolerance
**D.** familiarity

**25.** The narrator's statement "Their prints . . . suit me better than the things I brought from the city" (lines 112-114) implies that she

**A.** has lost her sense of reality
**B.** is identifying with her grandmother
**C.** is soliciting her husband's approval
**D.** has a perverse desire to mock her aunts

**26.** The thematic conflict in this excerpt is based MAINLY upon

**A.** rural life-style and urban life-style
**B.** marital identity and individual identity
**C.** youthful life-style and mature life-style
**D.** evolving identity and established identity

**IV. Read the excerpt from the play *Caesar and Cleopatra* on pages 7 to 10 of your Readings Booklet and answer questions 27 to 40.**

**27.** The word that BEST describes Cleopatra's manner in lines 5 to 15 is

**A.** naive
**B.** restrained
**C.** submissive
**D.** calculating

**28.** Caesar looks at Cleopatra with "*complete coldness*" (line 9) because he

**A.** cannot tolerate insubordination
**B.** disapproves of her rebuking Rufio
**C.** perceives the transparency of her deceit
**D.** is disturbed by the demonstration of violence

**29.** When Lucius says "We are quits now, as to killing — you and I" (lines 34-35), he means that

**A.** he is weary of strife and bloodshed
**B.** both he and Caesar are responsible for murder
**C.** he believes Ptolemy ordered Pothinus to be killed
**D.** both he and Caesar are responsible for seeking peace

**30.** Cleopatra is "*greatly emboldened*" (line 39) because she

**A.** senses an ally in Rufio
**B.** recognizes Caesar's need for defence
**C.** is relieved that the assassination succeeded
**D.** hopes that the death will strengthen her royal claim

**31.** Cleopatra determined that Pothinus must die MAINLY because he had

**A.** insulted her
**B.** betrayed her
**C.** supported Ptolemy
**D.** conspired against Caesar

*Continued*

**32.** In appealing for the support of Lucius, Apollodorus, and Britannus (lines 49-57), Cleopatra hopes to

**A.** confirm her goodness
**B.** manipulate Caesar's reaction
**C.** undermine Caesar's popularity
**D.** prove herself a powerful leader

**33.** In comparing the remarks of Britannus and Caesar on the subject of punishment (lines 58-60 and 65-77), the MOST SIGNIFICANT difference is that

**A.** Britannus seeks glory, Caesar seeks peace
**B.** Britannus is sentimental, Caesar is hardened
**C.** Britannus has a sensitive social conscience, Caesar does not
**D.** Britannus believes in absolutes, Caesar recognizes their peril

**34.** In lines 65 to 77, Caesar puts forth the belief that

**A.** power exacts payment
**B.** diplomacy limits power
**C.** violence begets violence
**D.** expediency justifies murder

**35.** In which of the following quotations does the speaker use verbal irony?

**A.** "He is as dead as Pompey" (line 34)
**B.** "he insulted me — me, the Queen" (line 48)
**C.** "I am only a dreamer" (lines 85-86)
**D.** "Caesar's head is ripe" (line 131)

**36.** The dominant tone of Caesar's speech in lines 98 to 106 is one of

**A.** quiet resignation
**B.** angry indignation
**C.** understated displeasure
**D.** deliberate contemplation

*Continued*

**37.** Rufio is characterized as being MAINLY

**A.** opinionated and seeking recognition
**B.** respectful to and admiring of Caesar
**C.** impressed by and attracted to Cleopatra
**D.** self-serving, concerned for his own welfare

**38.** Caesar's wisdom is evident in his recognition that

**A.** Cleopatra is vulnerable because she is a woman
**B.** Pothinus was aiding Ptolemy in an act of betrayal
**C.** Pothinus' freedom was the key to calm in the city
**D.** Cleopatra's claim to the throne was hopeless from the outset

**39.** Caesar says "Oh, ignoble, ignoble!" (line 122) because

**A.** Cleopatra has challenged Caesar
**B.** the Egyptians have disgraced themselves
**C.** Cleopatra is behaving without dignity or courage
**D.** the Egyptians are about to commit acts of vengeance

**40.** The trait that is common to both Caesar and Cleopatra is

**A.** pride
**B.** defiance
**C.** diplomacy
**D.** deceitfulness

**V. Read the excerpt from the play *Henry VI,* Part 3, on pages 11 and 12 of your Readings Booklet and answer questions 41 to 48.**

**41.** King Henry's statement "Now one the better, then another best" (line 10) refers to

**A.** winners and losers
**B.** commanders and soldiers
**C.** recurrent changes in the surge of battles
**D.** conquest dependent upon the strength of soldiers

**42.** Which statement BEST summarizes the son's reflections in lines 18 to 23?

**A.** War is gratifying to the strong.
**B.** Men go to war for material gain.
**C.** In war, soldiers often feel remorse.
**D.** In war, the victor may soon become the victim.

**43.** Line 24, "Who's this? O God! it is my father's face," parallels the line

**A.** "Weep, wretched man, I'll aid thee tear for tear" (line 37)
**B.** "Ah no, no, no, it is mine only son" (line 45)
**C.** "Was ever son so ru'd a father's death" (line 63)
**D.** "For I have murdered where I should not kill" (line 72)

**44.** When King Henry appeals to heaven: "Wither one rose, and let the other flourish; / If you contend, a thousand lives must wither" (lines 55-56), he is pleading for

**A.** victory over the enemy
**B.** an end to the bloodshed
**C.** youth to take the place of age
**D.** age to take the place of youth

**45.** The word "contend" in line 56 means

**A.** flee
**B.** fear
**C.** delay
**D.** resolve

*Continued*

**46.** In lines 57 to 62, the three characters share the concern that others will respond to their actions with

**A.** pity
**B.** grief
**C.** disbelief
**D.** condemnation

**47.** In lines 63 to 65, the playwright uses parallelism to emphasize the

**A.** terrors of war
**B.** compulsion of duty
**C.** grief of the speakers
**D.** pain of the murdered men

**48.** King Henry is "more woeful" (line 75) than either the father or the son MAINLY because the

**A.** king must bear collective grief
**B.** king's actions will be misunderstood
**C.** battle has not gone well for the king
**D.** subjects will not feel the king's grief

**VI. Read the essay "Belfast: The Allure of the 'Troubles' " on pages 13 and 14 of your Readings Booklet and answer questions 49 to 62.**

**49.** The title phrase "The Allure of the 'Troubles' " is paradoxical in that it points out the contradiction between the

**A.** sensible and the foolish
**B.** familiar and the unfamiliar
**C.** appealing and the threatening
**D.** experienced and the inexperienced

**50.** The author suggests that the war in Northern Ireland provides the Northern Irish with a

**A.** sense of purpose in their daily existence
**B.** sense of control in the larger nuclear struggle
**C.** broader economic base in a time of depression
**D.** means by which they can create national heroes

**51.** The author believes that it is presumptuous "to do their thinking for them" (line 3) because

**A.** Northern Ireland is a strange place
**B.** peace is an unrealistic alternative to war
**C.** perpetual war strengthens the fabric of society
**D.** outsiders interpret from an outsider's point of view

**52.** Which of the following ironic observations MOST DIRECTLY implies the powerful effect of habit?

**A.** "It is a strange place where peace is unknown in the lifetime of almost half the population, but Northern Ireland fills the bill; and like everyone else, people there prefer the familiar." (lines 5-7)

**B.** "Fighting a war is certainly a better *raison d'ètre* than none at all, which is what confronts so many people in the British Isles of the 1980s." (lines 25-26)

**C.** "Another aspect of war is how significant it can make you feel in the world picture." (lines 48-49)

**D.** "There is also, for those who enjoy that sort of thing, the excitement of participating in an atrocity and then going home to watch it replayed on the six o'clock news." (lines 62-64)

*Continued*

**53.** The statement that illustrates the lack of compromise that is characteristic of the war in Northern Ireland is

**A.** "but peace only on his own impossible terms. Otherwise he wants war" (lines 12-13)

**B.** "To me, reading this in London, the only 'possible catastrophe' is nuclear annihilation" (lines 41-42)

**C.** "It may well be a delusion to avoid the issue, but it must also be a relief" (lines 46-47)

**D.** "None of this can be held against the people of Belfast: Who wouldn't enjoy being in such demand?" (lines 57-58)

**54.** The author's daughter objects to the ex-paramilitary man (line 14) because this man represents people who

**A.** are attracted to adventure
**B.** are psychologically inhibited
**C.** have abandoned a sense of morality
**D.** have developed dependency on violent behavior

**55.** The old Englishman's response to World War II (lines 30-32) MAINLY contrasts the effects of

**A.** belief and skepticism
**B.** acceptance and rejection
**C.** involvement and inactivity
**D.** offensiveness and defensiveness

**56.** "Being in Belfast is like being in a magnetic field: everything points one way or the other and lines up" (lines 33-34) means that the war

**A.** blocks out the greater fear of nuclear annihilation

**B.** gives Northern Ireland a prominent position on the world political map

**C.** imposes a mechanical distinction between friend and foe, an automatic reaction that determines identity

**D.** adds drama and excitement to the mediocrity of daily existence, satisfying the universal lust for blood

*Continued*

**57.** The Irish historian's quotation in lines 39 to 41 implies that

**A.** catastrophe is inevitable
**B.** nuclear annihilation is imminent
**C.** society traditionally distrusts education
**D.** appropriate education could offer a solution

**58.** The author suggests that the Northern Irish are unconcerned about the threat of nuclear war MAINLY because they are

**A.** preoccupied with their own war
**B.** convinced that they would not be affected
**C.** convinced that nuclear war would solve their grievances
**D.** relying on leaders to dissociate nuclear war from local conflict

**59.** The references to journalists and other observers (lines 51-61) emphasize the point that the

**A.** media misinterpret the Irish troubles
**B.** unrest in Ireland stems from divided interest
**C.** media play a significant role in Northern Ireland
**D.** people in Northern Ireland have an inferiority complex

**60.** Lines 59 to 61 indicate that the healing effect of a "placebo" is

**A.** permanent
**B.** dependable
**C.** sensational
**D.** psychological

**61.** The context of the "atrocity" (line 63) that the Northern Irish participate in implies that

**A.** the poor continue to anticipate peace
**B.** this spectacle has become a way of life
**C.** the media have not overlooked discrepancies in life-style
**D.** chaotic events are best suited to capture the imagination

**62.** According to the author, the "allure" of Northern Ireland's troubles is that

**A.** violence flourishes
**B.** victory is guaranteed
**C.** inhibitions are overcome
**D.** peace has nothing better to offer

**VII. Read the excerpt from the novel *Grain* on pages 15 to 18 of your Readings Booklet and answer questions 63 to 70.**

**63.** Gander's solitary nature is reinforced in lines 1 to 22 MAINLY through reference to his

**A.** farming expertise
**B.** social withdrawal
**C.** social responsibility
**D.** nationalistic impulses

**64.** Gander's choosing to fulfil his patriotic duty by growing wheat suggests, in context, that Gander

**A.** is politically naive
**B.** is fearful of commitment
**C.** has conformed to society's expectations
**D.** has rationalized his aversion to the army

**65.** Gander thinks that he would be at a disadvantage socially at the Burge party (lines 18-20) because of his

**A.** intention to go alone
**B.** decision not to enlist
**C.** affection for Jo Burge
**D.** obligation to the Burge family

**66.** That Gander is courageous in spite of his refusal to enlist in the army is MOST CLEARLY implied in

**A.** " 'Guess I could take a chance with the rest' " (line 85)

**B.** " 'A boy who could do what you did — that day at the thresher — isn't afraid' " (lines 87-88)

**C.** " 'Besides, I got too much spirit to be a soldier' " (line 113)

**D.** " 'If I'd been Fred I'd ha' hit 'im a poke in the eye' " (lines 119-120)

*Continued*

**67.** The phrase "His strength was the strength of immobility" (line 82) indicates that Gander is

- **A.** erratic
- **B.** mature
- **C.** resolute
- **D.** aggressive

**68.** When Gander and Jo refer to the "square dance" (lines 127 and 128), they mean

- **A.** military drills
- **B.** public fanfare
- **C.** acts of bravado
- **D.** the farewell dance

**69.** Gander's behavior in lines 134 to 148 is prompted MAINLY by

- **A.** cruelty
- **B.** jealousy
- **C.** arrogance
- **D.** impetuousness

**70.** Gander's comment " 'That's the way to lick the enemy' " (line 139) expresses his

- **A.** reluctant admiration
- **B.** humorous disposition
- **C.** remorse for being fearful
- **D.** defensive need to ridicule

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# GRADE 12
# DIPLOMA EXAMINATION

## English 33

### Part A: Written Response

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# ENGLISH 33

## Part A: Written Response

### GENERAL INSTRUCTIONS

This examination consists of THREE sections. Read the **WHOLE** examination before you begin to write. Complete **ALL** sections.

Total time: 2½ hours

Budget your time carefully.

The three sections of the test are as follows:

| | | Page Number |
|---|---|---|
| Section I: | Personal Response to Literature<br>Suggested time: 75 minutes<br>Value: 50% of this examination | 2 |
| Section II: | Functional Writing<br>Suggested time: 45 minutes<br>Value: 30% of this examination | 13 |
| Section III: | Response to Visual Communication<br>Suggested time: 30 minutes<br>Value: 20% of this examination | 22 |

You may use a nonelectronic English language dictionary and a thesaurus, but no other reference materials.

Space is provided for Planning and Drafting and for Revised Work.

Please write your revised work in blue or black ink.

**DO NOT WRITE YOUR NAME ANYWHERE
IN THE TEST BOOKLET.**

**JANUARY 1990**

## SECTION I: PERSONAL RESPONSE TO LITERATURE

**Read the excerpt from *Lake Wobegon Days* and complete the assignment that follows.**

### from LAKE WOBEGON DAYS

On this cold night, the skating rink was a carnival. The music I could hear when I left my house, and now I saw the long V of colored lights hung out across the rink from the warming house. Its windows blazed white. Pairs of skaters flowed counterclockwise in a great loop to "The Blue Skirt Waltz," and little kids buzzed around the big slow wheel as it turned. I looked for the girl I loved, who I had met the night before.

She was older, eighteen or nineteen, and had worn bright lipstick and sat down beside me in the warming house and slowly unlaced her leather boots and took them off and then her socks. My face turned red. In the Age of Imagination, before the Age of Full Disclosure, the removal of any article of clothing was inspirational. She was a cousin of the Ingqvists, up from Minneapolis for Christmas break, and had a way about her that set her apart. Her hair, for example, was jet-black and cut short as a man's. She wore a short skirt and tights, but unlike other girls whose tights were lumpy from long johns, hers were tight. She leaned against me and said, "Got a cigarette?" No girl asked me that before, because I didn't smoke, but for her sake, I said, "Yeah," thinking I *might* have one — it certainly was worth a look, and who would say no at a time like that? — then said, "Oh, I just remembered. I forgot mine at home." She said, "Oh, well. I think I got two in my purse." She offered one to me. I didn't smoke, but then I was young, I'd been held back, it was time to get started on these things, so I said, "Thanks." She gave me the book of matches. As I lit one and held it toward her mouth, she held my hand to steady it. We took deep drags and blew out big clouds of smoke, then she leaned back and inhaled again, and I leaned forward and put my head between my knees. Not sick exactly, I was simply appreciating it more than most people do. I was sixteen, I experienced everything deeply.

This night she was there again, sitting on the bench against the wall, with my friend Jim who was not smoking but who was inhaling her smoke as deeply as he could. "Dorene's from Minneapolis," he told me. I ignored him. "I got to show you something," I told her. "Whenever you're done here."

As we walked up the hill toward Main Street, I wasn't so sure what I could show her in Lake Wobegon that would be interesting, so I made up a story about a woman named Lydia Farrell who had lived here in love with the memory of a boy who had drowned. I picked out Florian Krebsbach's house as the home where Lydia spent fifty years in solitude, cherishing the few brief moments she spent with young Eddie before his boat overturned in a sudden storm. The moral was that we must seize our few bright moments and live deeply. It surprised me, how easily I did this and kept her interested. We walked up to the Ingqvists, both enjoying Lydia's sweet sad life, and then she asked me if I skied. I said, "Sure." I never had, but how would I know I couldn't unless I tried? So the next afternoon, I was squeezed next to her in the back seat of the Ingqvists' Lincoln, Chip driving, eight of us in the car, going goodness knows where.

Unbelievable to me, being in the same car with Ingqvists and that whole Ingqvist crowd, sharp dressers in those Norwegian ski sweaters you couldn't find in town and who never had asked me before so much as to come in their house. But Dorene, who was even finer than they, had seen something in me. She was from Minneapolis but had spotted some personal quality of mine that other people had never seen, and I was determined not to let her down. I imagined her turning to me with a smoky Minneapolis look and saying,

*Continued*

"Kiss me," and so had practiced kissing, using my thumb and forefinger as practice lips. I had also gone to the library and skimmed through a book about skiing. I felt prepared to do either one.

A long drive during which they all talked about college and how much harder it was than high school. "You have to study six or seven hours a day," Chip said. I said I didn't think it was so hard. They laughed: "What do you know?" I said I'd read a lot of college books. "Like *what*?" A lot of different things, I said. Dorene held my hand. She said, "It isn't hard for everybody. Some people have a harder time in high school, then they do real good in college."

I was grateful for that, but by the time we got to where we were going, I was much less confident about everything. It was dark. A plywood Swiss chalet sat between two spruce at the end of the parking lot, and beyond it strings of lights ascended a hill much steeper than what seemed possible in Minnesota. (Maybe we were in Wisconsin.) They got their skis off the car carrier. I was going to say, "That's all right, you go ahead, I feel like I'm coming down with something. I'll just wait in the building. I'll be okay. You go ahead" — and then she put a pair of skis and ski poles in my hands and said, "Let's go," so I went.

I put on the skis, which she refastened so they wouldn't fall off, and showed me where to stand, next to her, holding hands, and the big wheel groaned in the wheel house and the bench came up behind and scooped us up and we rose into the dark. "I can't ski," I said; she said, "I know." We kissed. We slid off at the top and I staggered after her to the edge of the precipice where Chip Ingqvist stood, adjusting his binding. He grinned at me and flung himself off. She told me to relax, stay loose, bend my knees, and if I lost my balance to just sit down — and she jumped over the edge and I did too, and followed her down in a series of short rides. Skiing, sitting down, skiing. I lost momentum in the sittings so at the bottom where other skiers flashed across the flats to the chalet and plowed to a stop, I had to walk. She was gone when I got there. I sat in the chalet for an hour with some people from Minneapolis who hoped they could make it to Colorado in February, then she appeared, limping. She twisted her ankle while getting off the lift and had made the long trip down in pain. I examined it as if ankles were my speciality, a top ankle man called in from Minneapolis. "Can you walk on it?" I asked. She said, "I don't want to sit in here with all these people feeling sorry for me," so we went to the car, her arm around my neck, mine around her waist.

*Garrison Keillor*

## SECTION I: PERSONAL RESPONSE TO LITERATURE (Suggested time: 75 minutes)

### THE ASSIGNMENT

**The narrator in the excerpt from *Lake Wobegon Days* chooses to risk humiliation and danger in order to achieve his purpose of impressing the girl he admires.**

**WHAT IS YOUR OPINION OF THE NARRATOR'S ATTITUDE TOWARD TAKING RISKS?**

**In your writing you should**

- **consider the narrator's behavior and motives**
- **use your own observations and/or experiences to support your opinion**

**You may also refer to other literature you have studied.**

**Present your ideas in PROSE.**

### PLANNING AND DRAFTING

There is additional space for Planning and Drafting on pages 6. 8. and 10.

## REVISED WORK

There is additional space for Revised Work on pages 7, 9, and 11.

Section I: Personal Response to Literature

## PLANNING AND DRAFTING

There is additional space for Planning and Drafting on pages 8 and 10.

## REVISED WORK

There is additional space for Revised Work on pages 9 and 11.

Section I: Personal Response to Literature

## PLANNING AND DRAFTING

There is additional space for Planning and Drafting on page 10.

## REVISED WORK

There is additional space for Revised Work on page 11.

## PLANNING AND DRAFTING

## REVISED WORK

**GO ON TO SECTION II**

## SECTION II: FUNCTIONAL WRITING (Suggested time: 45 minutes)

Read the situation described below and complete the assignment that follows.

### THE SITUATION

You are a volunteer at the Nalwen Activities Centre. The Centre is under pressure to expand its programs, especially activities for pre-schoolers and for adults wanting evening courses in creative and industrial arts. However, there is limited space at the Centre and additional programs cannot be accommodated.

You are aware that the Nalwen school board has built a new elementary school. Consequently, Nalwen's old elementary school is vacant. The school board has asked the townspeople to submit suggestions for the future use of the old school. Despite its age, the building is in good condition.

### THE ASSIGNMENT

**ON BEHALF OF THE NALWEN ACTIVITIES CENTRE, WRITE A LETTER TO CONVINCE THE SCHOOL BOARD THAT THE OLD SCHOOL SHOULD BE MADE AVAILABLE FOR USE BY THE NALWEN ACTIVITIES CENTRE.**

**In your letter BE SURE to**

- **indicate the purpose of your letter**
- **explain why the old school would be a suitable building for programs offered by the Nalwen Activities Centre**
- **be convincing by using appropriate arguments and examples**
- **use an appropriate tone**

**NOTE: Letter format has been provided beginning on page 15.**
**Sign your letter PAT JONES.**

*Continued*

## PLANNING AND DRAFTING

There is additional space for Planning and Drafting on pages 16 and 18.

## REVISED WORK

Nalwen Activities Centre
P.O. Box 210
Nalwen, Alberta
T5J 2R8

January 10, 1990

Mr. A.J. Coyne
Secretary-Treasurer, Nalwen School Board
P.O. Box 225
Nalwen, Alberta
T5J 2T4

Dear ______________________ :

There is additional space for Revised Work on pages 17 and 19.

## PLANNING AND DRAFTING

There is additional space for Planning and Drafting on page 18.

## REVISED WORK

There is additional space for Revised Work on page 19.

## PLANNING AND DRAFTING

## REVISED WORK

**GO ON TO SECTION III**

*Continued*

## SECTION III: RESPONSE TO VISUAL COMMUNICATION (Suggested time: 30 minutes)

Examine the photograph on page 22 and complete the assignment below.

### THE ASSIGNMENT

**What idea(s) does the photographer communicate with this photograph? Explain how the details in the photograph and the photographer's techniques reinforce the idea(s).**

### PLANNING AND DRAFTING

There is additional space for Planning and Drafting on pages 24 and 26.

## PLANNING AND DRAFTING

There is additional space for Planning and Drafting on page 26.

## REVISED WORK

There is additional space for Revised Work on page 27.

Section III: Response to Visual Communication

## PLANNING AND DRAFTING

## REVISED WORK

# CREDITS

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Ken Heyman. Photograph from *The World's Family* (New York: Putnam Publishing Group).

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M1 ☐

M2 ☐

M3 ☐

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ENGLISH 33: PART A

**NAME:** (LAST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ (FIRST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐ **DATE OF BIRTH:** Y ☐☐ M ☐☐ D ☐☐ **SEX:** ☐

**PERMANENT MAILING ADDRESS:** ______________________________
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ENGLISH 33: PART A

# READINGS BOOKLET

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# GRADE 12
# DIPLOMA EXAMINATION

## English 33

### Part B: Reading (Multiple Choice)

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# ENGLISH 33

## Part B: Reading (Multiple Choice)

## READINGS BOOKLET

## GENERAL INSTRUCTIONS

Part B of the English 33 Diploma Examination has 70 questions in the Questions Booklet and eight reading selections in the Readings Booklet.

**BE SURE THAT YOU HAVE AN ENGLISH 33 QUESTIONS BOOKLET AND AN ENGLISH 33 READINGS BOOKLET.**

**YOU HAVE 2 HOURS TO COMPLETE THIS EXAMINATION.**

You may **NOT** use a dictionary, thesaurus, or other reference materials.

**JANUARY 1990**

**I. Questions 1 to 13 in your Questions Booklet are based on this excerpt from the story "Falling in Love."**

## from FALLING IN LOVE

*Because of the sudden departure of her boyfriend, Larry, the narrator decides to go home to her family. She finds herself facing a dilemma when she fails to heed a warning about road construction.*

I get off the bus and I stand beside the highway at Jordon Siding, wondering what to do now. I've come to a dead end. Stopped by the reality of a churned-up landscape.

"I'm sorry you didn't know — ah," the bus driver searches for the correct word. Am I Miss or Ma'am? as he pushes his cap back on his chunky sandy head.

"Didn't they tell you when you bought the ticket that the road was under construction?" the bus driver asks. His eyes take in the shoebox I carry beneath my arm, tied closed with butcher string, air holes punched in it so Satan can breathe. A going-away present from Larry, a black rabbit. He has taken off, Larry has, has flown the coop and left me with the rabbit and one measly shirt to remind me of him.

Before me, where I should be making my connection with another Grey Goose bus that will carry me thirty miles east across farming country to Agassiz[1] and back into the bosom of my family, the road is a muddy upheaval of rocks, slippery clay and topsoil. Under destruction. The whole world is under destruction. Larry used the word 'dead-end.' And so he has turned the other way, headed down the highway to Montreal to work in his brother-in-law's car rental business.

"If you love someone, let him go," Larry's mother said. "And if he comes back, he's yours. Whatever you do, don't take this thing personal, okay? Larry's like that. Every spring, he takes off. Spring fever, it's in his blood," she said.

"You'd better get back on the bus and make your connection in Winnipeg," the driver says and it's clear from his tone that he's decided I'm a Miss which gives him certain authority. I'm aware of faces in the windows looking out at me, slight bemusement with my predicament. I see in the window my greasy black hair tied up into a pony tail, Larry's shirt, my jeans held at the waist with safety pins because I have lost ten pounds. My luggage is an Eaton's shopping bag.

"Forget it," I say to the bus driver. "I'm not going all the way to Winnipeg. Just forget it."

He laughs. "I don't see what choice you have." He puts his sunglasses back on and I can see myself in them. And it seems to me that he, along with everyone else, conspires against me. That I have never had a choice. "You looked at my ticket when I got on. Why didn't you say something?"

"I thought you knew."

I pick up the shopping bag and begin to walk away. "Well, I didn't. And I'm not spending three hours on the bus. So, I guess I'll walk."

He blocks my way. "Whoa. Agassiz is thirty miles away. And it's going to

*Continued*

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[1] Agassiz — situated near Agassiz Lake in Manitoba

be one hot day." He scans the cloudless sky.

"What's it to you whether I walk or ride?"

The driver's thick neck flares red. He steps aside. "Right. It's no skin off my nose. If you want to walk thirty miles in the blazing sun, go ahead. It's a free country."

The bus roars down the highway, leaving me in a billow of hot sharp-smelling smoke. The sound of the engine grows fainter and then I'm alone, facing that churned-up muddy road where no vehicle could ever pass. Thirty miles! I hear a meadowlark trilling and then a squealing rhythmic sound of metal on metal. It comes from a BA gas sign swinging back and forth above two rusting gas bowsers that stand in front of a dilapidated wood-frame building. Jordon Siding garage and store. Eureka. A telephone. I will call home and say, guess what? No, I'll say, it's your prodigal daughter, to get them thinking along charitable lines. I have seen the light. Plants fill the dusty store window and off to one side, in a tiny yard, freshly laundered clothes flutter from a clothesline.

"Hello, anyone here?" I call in the direction of the backrooms behind the varnished counter where I imagine potatoes boil in a pot, a child sleeps on a blanket on the floor while its mother ignores my voice, sits in an over-stuffed chair, reading a magazine. What is she reading, I wonder? I look about me. No telephone in sight.

Outside once again, I face that bleak turned-up landscape and begin walking in the direction of Agassiz. I face the sun and walk off to the side of the road, following the deep imprint left behind by one of the monstrous yellow machines that sits idle in the field beyond. Why aren't there any men on the machines? Why aren't they working today? I begin to feel uneasy. The sounds of the countryside rise up and Satan thumps violently against his box in answer. Around me stretch broad fields dotted with clumps of trees. In the distance a neat row of trees, planted as a windbreak, shades a small farmhouse and outbuildings. Overhead, the flat cloudless sky, no perspective, I cannot gauge distance. It's as though this is a calendar picture of a landscape and I have somehow entered into it. Except for yellow grasshoppers sprinting up before my feet and the tireless hovering of flies above the ditches, there is no movement anywhere. I turn around. The garage is still the same distance. I can turn back and wait for a car and hitch a ride to Winnipeg. I could go back to Manitou. But it seems to me that I have been set in this direction, that it's inevitable. I walk for an hour. Satan continues to struggle. I stop to rest, lift the lid off the box a crack and push wilted lettuce through to him. I sit down, take Larry's note from my shirt pocket and unfold it on my knee.

*Dear Lureen,*

*I'm sorry if you got your hopes up. Like the song goes, you always hurt the one you love, the one you shouldn't hurt at all. That's life. But this town is a dead-end. You know what I mean. I think I'll take my sister up on her offer.*

*You are okay. Don't think I'm leaving because of you. I know you will get over me. Anyway, if it works out, I'll send you some money. I might send you enough to come to Montreal. I'll see. It just depends.*

*You can have Satan. I don't trust my mother to look after him anyway. Once she forgot to feed my goldfish and they all turned belly-up. Notice, I am leaving*

*Continued*

*you my denim shirt because you liked it so much.*
*Tell the old lady not to get in a sweat.*

*Luv U,*
*Larry.*

"Whatever you do," Larry's mother said when he introduced us, "don't get married." A cigarette dangled from one corner of her mouth and she squinted hard at me through the blue smoke. She was blonde, like Larry, and I thought that at one time she must have been beautiful, you could see flashes of it sometimes when she wasn't being sarcastic. "I'm only telling you for your own good," she said later when Larry was out of the room. "He's like his father. Lazier than a pet coon."

Larry was not lazy. He could pull the head off a motor, ream out the cylinders, do a ring and valve job in two days flat. I'd tell him I wanted to go to the dance at Rock Lake and he'd rebuild the transmission that afternoon so we could go. He opened the housing, called me down the stairs to come and see the giant cogs, how the gears were supposed to mesh. And I couldn't help but think the combustion engine is a joke, or at least a hoax perpetrated on man to keep him busy tinkering so he can't think about what's really happening. Wheels moving wheels, moving pulleys, moving more metal and so much motion for so little effect, arms, lifters, valves, wheezing breathers, springs, filters, cylinders, shoes, things pressing against other things, grinding, particles of chewed-up metal sifting into other important parts. It was over-whelming. Faulty timing, a coughing engine, a rotten swaying front end, screeching wheelbearings, all these problems Larry and I faced and overcame in six months.

"Okay Larry," I said, wanting to say, this is silly. "There has got to be a much simpler way than the eternal combustion engine."

"Internal, internal combustion engine," he said, "and anyway, you are paid not to think, but to do." So, okay, I played the game. I soaked bolts and other metal shapes in my dishpan, brushed them down with Varsol, removed grease with a paring knife, had them looking like new. I learned how to install brushes in a generator. I took it apart in my lap. I thought the copper wires were beautiful. And then, that what I was doing was important. That maybe I'd like to have a part in the running of the internal combustion machine.

Larry flicked the end of my nose with a greasy finger and said no way would he put in four years getting his papers just to satisfy someone who had never taken apart anything more complicated than a Zippo lighter.

And always, we made it to the dance on time. That night, we'd be cruising down the highway, eating up the miles to Rock Lake, radio turned up full volume, Larry driving with two fingers and reaching with his other hand for me. And the gears would be meshing and the motor singing, the timing tuned just right and the radio playing all our favourite hits. And Larry would squeeze my hand and say, hey, honey bunch. Remind me to slow down long before we get to the corner, okay? I got no brakes.

Ancient history. I rest my head against my knees and I don't want to cry, Larry's not worth it, but I do. And then I take the lid off the shoebox and I pet Satan for a few moments and then I carry him to the side of the road and drop him into the tall grass. He scurries away without a backward glance.

*Sandra Birdsell,*
Contemporary Canadian writer

**II. Questions 14 to 20 in your Questions Booklet are based on this poem.**

## THE JELLY BEAN MAN

"He carries jelly beans," a neighbour told us
when we first came here. "You're lucky you don't
have any small children."
He's the Jelly Bean Man
and the first words he ever said to me
were, "Kiss it and make it well,"
he having observed my wife
bump her forehead against the door
of our car while getting into it
with her arms full of groceries.
"It's nothing to grin about," he said.

So I kissed her above
and between the eyes, and he said,
"Love her; she is the daughter of
Cronos[1] and Rhea,[2] the sister and wife
of Zeus.[3] Here I have a gift for her.
She will share it with you."

And he insisted that she take
two cinnamon rolls
which she and I later ate
at home, very slowly,
with dairy butter
— each bite was like hearing
a little ripple of simple music.

Later we learned it was true
he carried jelly beans and distributed them,
but only as an uncle might or a grandfather
— and, oh, it's so easy to teach
your small daughters and sons
to accept nothing
from strangers, to keep well back always,
to stay out of arm's reach,
to be prepared to run,

*Continued*

---

[1] Cronos — one of 12 gods in Greek mythology who ruled the universe, father of Zeus
[2] Rhea — the wife of Cronos and mother of Zeus
[3] Zeus — the presiding god in Greek mythology, ruler of the heavens and father of other gods and mortal heroes

so easy to tell them
about evil,
so hard to tell them
about innocence,

so impossible to say:
be good to the Jelly Bean Man
who gives candy to children
from no other motive than love.

*Alden Nowlan,*
Canadian writer (1933-1983)

**III. Questions 21 to 30 in your Questions Booklet are based on this excerpt from the play *Candida*.**

## from CANDIDA

CHARACTERS:

Eugene Marchbanks — a shy youth of eighteen, who believes himself to be in love with Candida, wife of Reverend Mr. Morell
Proserpine Garnett — Morell's secretary, a brisk thirty-year-old woman, pert and quick of speech
Reverend Mr. Morell — the husband Eugene sees as his rival
Candida Morell — Reverend Mr. Morell's wife

*London, England; 1894*

*This morning* EUGENE, *a guest in the Morells' home, has announced that he is in love with* CANDIDA MORELL *and now is determined to prove that he is a more suitable man for her than her husband is. This announcement has caused great confusion.* EUGENE *has retreated to the* REVEREND MORELL'S *comfortably furnished office, still preoccupied with his own frustrated love for* CANDIDA.

EUGENE *sits alone, trying to get the typewriter to work. Hearing someone at the door, he steals guiltily away to the window.* PROSERPINE *enters the room and sits down at the typewriter.*

**PROSERPINE**: Bother! You've been meddling with my typewriter, Mr. Marchbanks; and there's not the least use in your trying to look as if you hadn't.

**EUGENE** (*Timidly*): I'm very sorry, Miss Garnett. I only tried to make it write. (*Plaintively*) But it wouldn't.

**PROSERPINE**: Well, you've altered the spacing.

**EUGENE** (*Earnestly*): I assure you I didn't. I didn't indeed. I only turned a little wheel. It gave a sort of click.

**PROSERPINE**: Oh, now I understand. (*She restores the spacing, talking all the time.*) I suppose you thought it was a sort of barrel-organ. Nothing to do but turn the handle, and it would write a beautiful love letter for you straight off, eh?

**EUGENE** (*Seriously*): I suppose a machine could be made to write love letters. They're all the same, aren't they?

**PROSERPINE** (*Somewhat indignantly: any such discussion, except by way of pleasantry, being outside her code of manners*): How do I know? Why do you ask me?

**EUGENE**: I beg your pardon. I thought clever people — people who can do business and write letters and that sort of thing — always had to have love affairs to keep them from going mad.

**PROSERPINE** (*Rising, outraged*): Mr. Marchbanks! (*She looks severely at him and marches majestically to the bookcase.*)

**EUGENE** (*Approaching her humbly*): I hope I haven't offended you. Perhaps I

*Continued*

shouldn't have alluded to your love affairs.

**PROSERPINE** (*Plucking a blue book from the shelf and turning sharply on him*): I haven't any love affairs. How dare you say such a thing? The idea! (*She tucks the book under her arm and is flouncing back to her machine when he addresses her with awakened interest and sympathy.*)

**EUGENE**: Really! Oh, then you are shy, like me.

**PROSERPINE**: Certainly I am not shy. What do you mean?

**EUGENE** (*Secretly*): You must be: that is the reason there are so few love affairs in the world. We all go about longing for love: it is the first need of our natures, the first prayer of our hearts; but we dare not utter our longing: we are too shy. (*Very earnestly*) Oh, Miss Garnett, what would you not give to be without fear, without shame —

**PROSERPINE** (*Scandalized*): Well, upon my word!

**EUGENE** (*With petulant[1] impatience*): Ah, don't say those stupid things to me: they don't deceive me: what use are they? Why are you afraid to be your real self with me? I am just like you.

**PROSERPINE**: Like me! Pray are you flattering me or flattering yourself? I don't feel quite sure which. (*She again rises to get back to her work.*)

**EUGENE** (*Stopping her mysteriously*): Hush! I go about in search of love; and I find it in unmeasured stores in the bosoms of others. But when I try to ask for it, this horrible shyness strangles me; and I stand dumb, or worse than dumb, saying meaningless things: foolish lies. And I see the affection I am longing for given to dogs and cats and pet birds, because they come and ask for it. (*Almost whispering*) It must be asked for: it is like a ghost: it cannot speak unless it is first spoken to. (*At his usual pitch, but with deep sadness*) All the love in the world is longing to speak; only it dare not, because it is shy! shy! shy! That is the world's tragedy. (*With a deep sigh he sits in the visitor's chair and buries his face in his hands.*)

**PROSERPINE** (*Amazed, but keeping her wits about her: her point of honor in encounters with strange young men*): Wicked people get over that shyness occasionally, don't they?

**EUGENE** (*Scrambling up almost fiercely*): Wicked people means people who have no love: therefore they have no shame. They have the power to ask for love because they don't need it: they have the power to offer it because they have none to give. (*He collapses into his seat, and adds, mournfully*) But we, who have love, and long to mingle it with the love of others: we cannot utter a word. (*Timidly*) You find that, don't you?

**PROSERPINE**: Look here: if you don't stop talking like this, I'll leave the room, Mr. Marchbanks: I really will. It's not proper.

(*She resumes her seat at the typewriter, opening the blue book and preparing to copy a passage from it.*)

**EUGENE** (*Hopelessly*): Nothing that's worth saying is proper. (*He rises and wanders about the room in his lost way.*) I can't understand you, Miss Garnett. What am I to talk about?

**PROSERPINE** (*Snubbing him*): Talk about indifferent things. Talk about the weather.

**EUGENE**: Would you talk about indifferent things if a child were by, crying

*Continued*

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[1] *petulant* — irritable

bitterly with hunger?

**PROSERPINE**: I suppose not.

**EUGENE**: Well: *I* can't talk about indifferent things with my heart crying out bitterly in its hunger.

**PROSERPINE**: Then hold your tongue.

**EUGENE**: Yes: that is what it always comes to. We hold our tongues. Does that stop the cry of your heart? for it does cry: doesn't it? It must, if you have a heart.

**PROSERPINE** (*Suddenly rising with her hand pressed on her heart*): Oh, it's no use trying to work while you talk like that. (*She leaves her little table and sits on the sofa. Her feelings are keenly stirred.*) It's no business of yours whether my heart cries or not; but I have a mind to tell you, for all that.

**EUGENE**: You needn't. I know already that it must.

**PROSERPINE**: But mind! if you ever say I said so, I'll deny it.

**EUGENE** (*Compassionately*): Yes, I know. And so you haven't the courage to tell him?

**PROSERPINE** (*Bouncing up*): Him! Who?

**EUGENE**: Whoever he is. The man you love. It might be anybody. The curate, Mr. Mill, perhaps.

**PROSERPINE** (*With disdain*[2]): Mr. Mill!!! A fine man to break my heart about, indeed! I'd rather have you than Mr. Mill.

**EUGENE** (*Recoiling*): No, really: I'm very sorry; but you mustn't think of that. I —

**PROSERPINE** (*Testily, going to the fire-place and standing at it with her back to him*): Oh, don't be frightened: it's not you. It's not any one particular person.

**EUGENE**: I know. You feel that you could love anybody that offered —

**PROSERPINE** (*Turning, exasperated*): Anybody that offered! No, I do not. What do you take me for?

**EUGENE** (*Discouraged*): No use. You won't make me real answers: only those things that everybody says. (*He strays to the sofa and sits down disconsolately.*[3])

**PROSERPINE** (*Nettled at what she takes to be a disparagement*[4] *of her manners by an aristocrat*): Oh well, if you want original conversation, you'd better go and talk to yourself.

**EUGENE**: That is what all poets do: they talk to themselves out loud; and the world overhears them. But it's horribly lonely not to hear someone else talk sometimes.

**PROSERPINE**: Wait until Mr. Morell comes. He'll talk to you. (EUGENE *shudders.*) Oh, you needn't make wry faces over him: he can talk better than you. (*With temper*) He'd talk your little head off. (*She is going back angrily to her place, when he, suddenly enlightened, springs up and stops her.*)

**EUGENE**: Ah! I understand now.

**PROSERPINE** (*Reddening*): What do you understand?

**EUGENE**: Your secret. Tell me: is it really and truly possible for a woman to

*Continued*

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[2] *disdain* — contempt
[3] *disconsolately* — unhappily
[4] *disparagement* — snobbish criticism

love him?

**PROSERPINE** (*As if this were beyond all bounds*): Well!!

**EUGENE** (*Passionately*): No: answer me. I want to know: I must know. *I* can't understand it. I can see nothing in him but words, pious resolutions, what people call goodness. You can't love that.

**PROSERPINE** (*Attempting to snub him by an air of cool propriety*[5]): I simply don't know what you're talking about. I don't understand you.

**EUGENE** (*Vehemently*[6]): You do. You lie.

**PROSERPINE**: Oh!

**EUGENE**: You do understand; and you know. (*Determined to have an answer*) Is it possible for a woman to love him?

**PROSERPINE** (*Looking him straight in the face*): Yes. (*He covers his face with his hands.*) Whatever is the matter with you! (*He takes down his hands. Frightened at the tragic mask presented to her, she hurries past him at the utmost possible distance, keeping her eyes on his face while he turns from her and goes to the child's chair beside the hearth, where he sits in the deepest dejection.*)

*George Bernard Shaw,*
British dramatist and critic (1856-1950)

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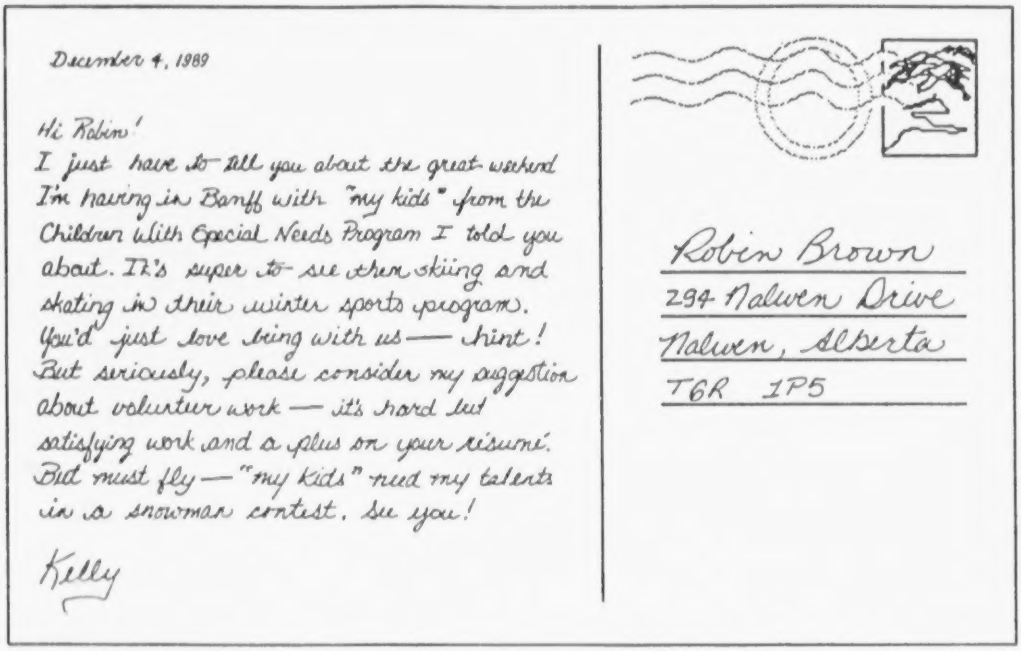
[5] *propriety* — the quality of being proper
[6] *Vehemently* — passionately

**IV. Questions 31 to 38 in your Questions Booklet are based on the following information that Robin has gathered regarding her decision to participate in a volunteer program.**

Robin's recent experience with Nalwen families who lost their homes in an apartment fire has made her aware of the importance of volunteers. She has collected the following materials to assist her in considering a volunteer program:

**H.** A postcard from Robin's cousin Kelly
**I.** Robin's letter of inquiry to Kelly
**J.** Kelly's reply to Robin's questions
**K.** An appeal published in the *Nalwen News*
**L.** An informational pamphlet about the Community Support Program
**M.** A brochure about the Nalwen Food Bank
**N.** Notes Robin made during her telephone inquiries about volunteer programs
**O.** Bulletin board advertisements seeking volunteers

**H. A postcard from Robin's cousin Kelly**



December 4, 1989

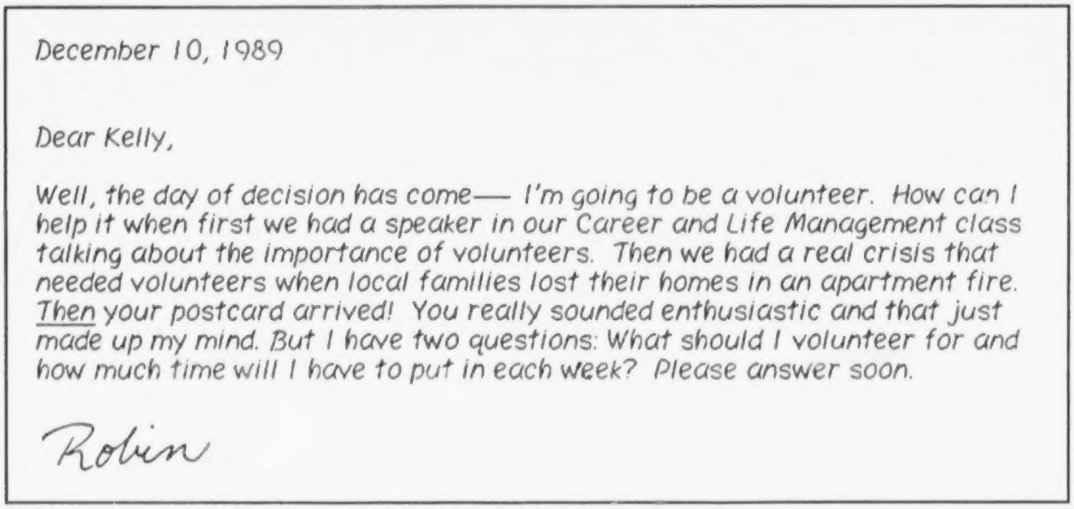
Hi Robin!
I just have to tell you about the great weekend I'm having in Banff with "my kids" from the Children With Special Needs Program I told you about. It's super to see them skiing and skating in their winter sports program. You'd just love being with us — hint! But seriously, please consider my suggestion about volunteer work — it's hard but satisfying work and a plus on your résumé. But must fly — "my kids" need my talents in a snowman contest. See you!

Kelly

Robin Brown
294 Nalwen Drive
Nalwen, Alberta
T6R 1P5

*Continued*

## I. Robin's letter of inquiry to Kelly



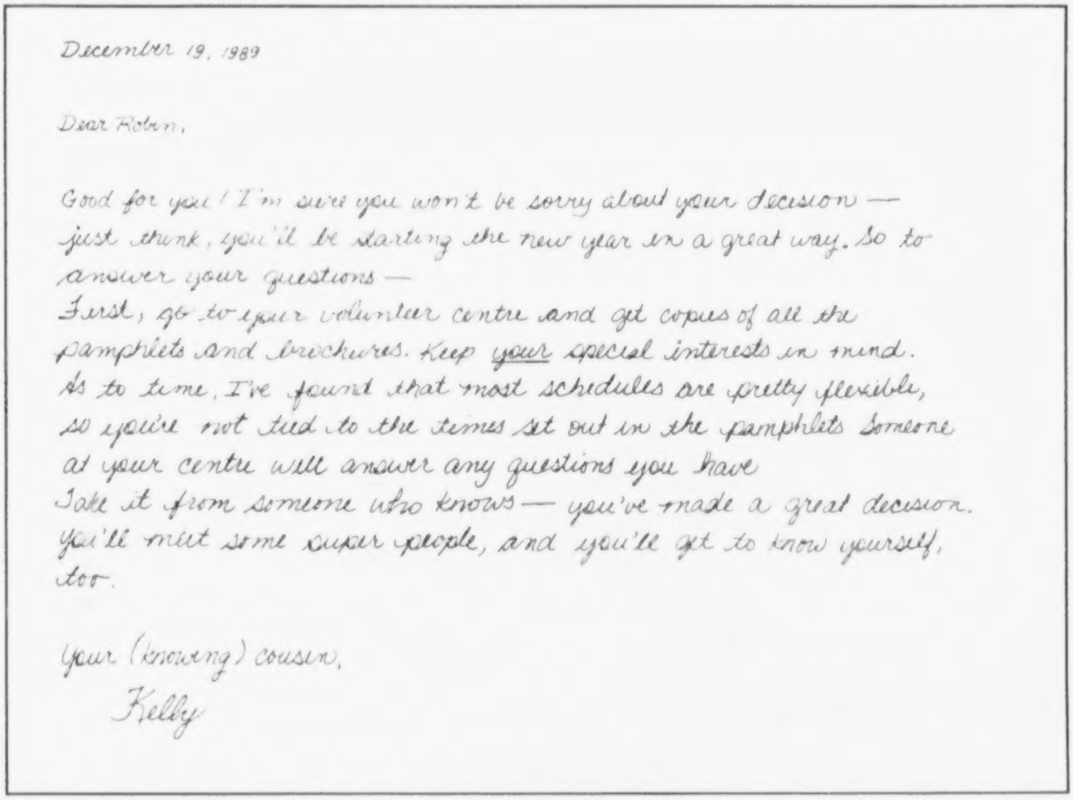
December 10, 1989

Dear Kelly,

Well, the day of decision has come— I'm going to be a volunteer. How can I help it when first we had a speaker in our Career and Life Management class talking about the importance of volunteers. Then we had a real crisis that needed volunteers when local families lost their homes in an apartment fire. Then your postcard arrived! You really sounded enthusiastic and that just made up my mind. But I have two questions: What should I volunteer for and how much time will I have to put in each week? Please answer soon.

Robin

## J. Kelly's reply to Robin's questions



December 19, 1989

Dear Robin,

Good for you! I'm sure you won't be sorry about your decision — just think, you'll be starting the new year in a great way. So to answer your questions —

First, go to your volunteer centre and get copies of all the pamphlets and brochures. Keep your special interests in mind.

As to time, I've found that most schedules are pretty flexible, so you're not tied to the times set out in the pamphlets Someone at your centre will answer any questions you have

Take it from someone who knows — you've made a great decision. You'll meet some super people, and you'll get to know yourself, too.

Your (knowing) cousin,

Kelly

*Continued*

**K. An appeal published in the *Nalwen News***

# TO ALL POTENTIAL
# VOLUNTEERS:

Your **Community Support Program** is sponsoring
two informational evenings:

**Thursday, January 18, 7:30 p.m. to 9:00 p.m.**
or
**Tuesday, January 23, 7:30 p.m. to 9:00 p.m.**
in the Community Support Program's boardroom,
#12, 10525 Nalwen Avenue

The informational session will give you a better idea of what is involved in becoming a volunteer. Community Support Program staff members will respond to individual concerns and explain how to become a volunteer. Prospective volunteers will be given suggestions for the short composition that is required before the screening process. Application forms and informational pamphlets will be available.

Nalwen needs the **Community Support Program.**
The **Community Support Program** needs you.

Plan to enrol in our next training program that begins in February.

*Continued*

**L. An informational pamphlet about the Community Support Program**

COMMUNITY
SUPPORT
PROGRAM

## TELEPHONE SERVICE VOLUNTEER PROGRAMS

You may be just the kind of person we need and we can provide you with the volunteer experience you want.

### WHY VOLUNTEERS?

Volunteers are the backbone of all the telephone programs at the Community Support Program. They are the best people for the job because they WANT to work the phone lines, not because they have to. They are not paid to listen — they do it because they care.

### THE ROLE OF THE VOLUNTEER

The volunteer is the first and often the only contact a caller has when seeking information, help, understanding, and a sympathetic listener; therefore, volunteers are key people.

### QUALITIES OF THE VOLUNTEER

The qualities that make a good telephone listener are maturity, warmth, stability, objectivity, and caring. Volunteers must be able to empathize with people in distress, not judge them.

### TRAINING THE VOLUNTEER

All prospective volunteers must take instruction in listening and communicating. This basic training course requires 50 hours to complete. (See below for specific training requirements.)

### SHIFT SCHEDULES AND TIME COMMITMENT

The Community Support Program has the following expectations: a commitment of at least one year, one four-hour shift per week, and one midnight shift per month. Health Line Only volunteers are not expected to work midnight shifts.

### PROGRAMS

The Community Support Program operates four distinct telephone services:

1. Information and Referral Line → offers a link between Community and Social Services and people who may need those services. Volunteers use the Directory of Community and Social Services to help link people and resources. Training required: on-the-job training every six weeks.
2. Distress Line → operates 24 hours seven days a week. This is the busiest and most demanding phone line, and it requires the majority of our volunteer hours. Volunteers offer callers nonjudgmental supportive listening. Training required: on-the-job training every six weeks.
3. Health Line → offers informational tapes on social, emotional, and physical health concerns. Volunteers simply respond to requests for these informational tapes. The Health Line provides an educational service. Training required: basic training course only.
4. Suicide Prevention Program → offers follow-up support for individuals in suicidal crisis, support for individuals experiencing a loss of a relative or a friend through suicide, and a public educational program. Training required: three months on the Distress Line.

*Continued*

**M. A brochure about the Nalwen Food Bank**

## NALWEN FOOD BANK — OUR INTEREST IS PEOPLE

### WHAT IS THE NALWEN FOOD BANK?

The Food Bank is a service that collects and distributes food to responsible organizations, which in turn provide assistance to those in need.

### FROM WHOM DOES THE FOOD BANK GET FOOD?

From all who have concern and compassion for neighbors in need:

- Farmers
- Food Processors
- Retailers
- Food Brokers
- General Public
- Wholesalers

### HOW IS THE FOOD DISTRIBUTED?

**Bulk Food** is distributed to agencies that have ongoing programs for the needy.

**Food Hampers** are supplied to responsible organizations that serve emergency needs in their area.

### HOW CAN YOU HELP?

The Food Bank needs volunteers to

- collect and distribute food
- sort and shelve stocks of food
- answer phone inquiries and record phone-in donations of money and food
- handle publicity and set up Food Bank donation drives

### CRISIS NEEDS

The Food Bank assists and supplements the food programs of agencies and private groups caring for the needy. It is not a substitute for welfare or other subsidized help available to those in need.

**HELP US
TO HELP OTHERS**

**N. Notes Robin made during her telephone inquiries about volunteer programs**

VOLUNTEER PROGRAMS

1. Meals on wheels (249-0202) Contact. Grace Sedwick
    - drivers and servers required to provide hot meals for shut-ins or those unable to prepare meals
    - Monday to Friday (11.00 a.m.-1.00p.m.)
    - drivers use own vehicle
    - 3-day training program
2. St. John Ambulance-Nalwen area (254-6116) Contact. Kimberly
    - must have taken standard first-aid course
    - they will train in CPR ⟶ then can volunteer for specific programs
3. Nalwen Hospital Teen Program (234-4882) Contact. Maud
    - commitment of 3 hrs/wk (minimum) days/nights/weekends
    - areas of work. candy shop, portering, childminding, reading to, feeding, and socializing with patients
    - no restrictions ⟶ only your interest is required
4. Nalwen Home for the Deaf (224-4402) Contact: Joe Flynn
    - must be familiar with sign language
    - fill out an application ⟶ wait for an interview
5. CNIB (284-8471) Contact. Louise
    - reading English history to students taking summer courses
    - work with Sports and Recreation for the Blind ⟶ camping, horseback riding, etc. Short training course begins March 10

Continued

### O. Bulletin board advertisements seeking volunteers

## BULLETIN BOARD

**VOLUNTEERS NEEDED**
**Nalwen Drop-In Youth Centre**

Volunteers needed to organize social and recreational activities.

For more information, call the volunteer co-ordinator at 243-6004, ext. 424

**ASSISTANT INSTRUCTORS**
**Parks and Recreation Services**

Volunteers are needed to help with recreational classes for mentally disabled adults. One to three hours per week, evenings or weekends. Training provided.

Call 222-5588

**DRIVERS AND LOADERS**
**Nalwen Food Bank**

Do you enjoy physical work or driving? Drivers and loaders are required to pick up food donations or deliver food supplies. Morning and afternoon shifts.

Call Tim at 252-0914

**CALLING ALL COACHES**
**Coaching Conference**

Nalwen Parks and Recreation Services will host a conference on April 4 that is open to all persons interested in volunteer coaching any Nalwen Community League sport.

Call Melanie at 259-5190

**VOLUNTEER READING ASSISTANTS OF NALWEN**

Volunteer Reading Assistants of Nalwen provides one-to-one tutoring. Students receiving tutorial help are able to progress at their own rate. Training workshops for new volunteer tutors offered Feb. 17-18.

For more information, write:
P.O. Box 707, Nalwen, Alberta
T5J 2R2

**ACTORS NEEDED**
**Nalwen Women's Shelter Program**

Are you concerned about people with problems? Do you like to role play? If you answered "Yes" twice, then volunteer for a role in our Family Problems video series.

Call Barb at 229-9297

**FUND-RAISING EVENT**
**Nalwen's Annual Agricultural Fair**

Volunteers are needed to set up booths, organize displays, and handle sales. Volunteers are also required to set up and run the games and amusement booths. Monies raised will go toward the Help-Your-Neighbor Fund established to help Nalwen's apartment fire victims.

Call Dan at 236-4103

**V. In order for Robin to apply as a volunteer for the Community Support Program, she is required to submit a composition providing information about her motivation and commitment to the program. Questions 39 to 43 in your Questions Booklet are based on Robin's rough draft that follows.**

## Paragraph 1

Many people throughout the world and throughout time have accepted the belief that it is by giving that you receive. I am one of those many people. I strongly support the idea that you get what you give. This should specify what is what has motivated me to commit myself to becoming a volunteer for the Community Support Program.

## Paragraph 2

What motivates a person to become a volunteer? This is a question I asked myself. To find the answer, I decided to attend a Community Support Program informational evening. There I saw volunteers in action and I learned a great deal. First, Volunteers must like people in order to help and support them. Second, Volunteers must remember that any ~~payments~~ rewards they receive will not involve money, but appreciation and trust will be freely given by the people they help. Third, and perhaps most important, Volunteers will learn about themselves and recognize their own strengths, and by knowing themselves better they will be more able to help others.

*Continued*

## Paragraph 3

However, if people are ~~a person is~~ motivated mostly by a desire to ~~want to~~ solve their personal problems, they will most likely receive little. How can they expect others in need to help them?

## Paragraph 4

What is expected of volunteers is ~~Expectations are~~ another major area to consider ~~think about~~. People seeking help need support, assistance, and willing ~~a good~~ listeners; therefore, volunteers are expected to be supportive, caring, and sympathetic. They need to be non~~un~~judgmental and uncritical of ~~to~~ those in distress. They need to offer encouragement and hope, and to show respect for the dignity ~~worth~~ and feelings of others experiencing times of difficulty, confusion, or pain.

## Paragraph 5

I was first motivated to become a volunteer ~~consider volunteering~~ by my cousin who once said to me, "The greatest reward I have received has come from being a volunteer. It has give~~s~~n me a [tremendous] feeling of satisfaction because I had the opportunity to make a difference in someone else's life in a way that matters and is meaningful." Being a volunteer is a commitment of yourself to others -- and I want to experience that!

**VI. Questions 44 to 50 in your Questions Booklet are based on this poem.**

## CHASING THE PUCK

Viewing shoot-for-the-corner
slap-shot, drop-pass antics
of Hockey Night in Canada —
Leafs versus Red Wings
In Mr. Smythe's[1] well-heated ice-palace,

it's not hard to let the mind wander,
to put skates on twelve-year-old ankles,
to clear ice at Second Marsh and dodge
the tips of the bull-rushes sticking through;

to find one five-below morning
(spent under echo-bouncing curve
of Old Mill Bridge) my right foot
well-frozen, and taking me
five minutes' agony with snow
rubbed almost through the skin
to bring it redly back . . .

To come to that afternoon
my shot caught their goalie on the eye,
and the game ruined, him turning
away from me after that . . .

But now Gordie Howe[2]
side-steps, fakes, and moves in,
and I'm right there behind him
poised for the shot, the net-bulge, the electric roar!

*Raymond Souster,*
Contemporary Canadian writer

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[1] Mr. Smythe — Conn Smythe, managing director of the Toronto Maple Leafs in the late 1920s

[2] Gordie Howe — famous Canadian hockey player of the 1960s and 1970s

**VII. Questions 51 to 59 in your Questions Booklet are based on these excerpts from the film script *Friends and Relations*.**

## from FRIENDS AND RELATIONS

*After the death of* DR. LAWSON BIRD, *his widow,* RUTH, *was hired by* SAMPSON WILLEY *in his real estate office as a realtor-in-training. During her six months of employment, she has not closed a sale; yet she has done all the preliminary work for house sales such as the one to* BEN *and* NAOMI SOLOMONS.

DAYTIME — THE WILLEY REALTY OFFICE

**MRS. BIRD**: . . . my first customers that looked anywhere ready to buy and you stole them away from me . . . and I've had others not so far along that you took over. I didn't mind at first because I thought you were trying to help me close the deal. But you've never once put my name on the offer. Am I just in the office to find prospects for you? I have to clothe myself, Mr. Willey, please remember that, and run my car and pay for my advertisements. I haven't cost you a cent, and you've made plenty of money from my getting out and digging. I want you to share the commission on the Solomons sale with me.

**WILLEY**: You want to know something, Ruth? Ben and Naomi were fed up with being shown house after house. They were ready to deal but you had them all confused. They'd seen a dozen houses and according to you every one was the best buy in Stoverville.

**MRS. BIRD**: When I'm showing a house I try to feel it's the best property in town. You told me to do that yourself.

**WILLEY**: I know I did, but you haven't got the feel of it yet. You have to make it like a story, like a little play. You have to sense how close the prospect is to a commitment. I've seen you waste two or three days on prospects I knew weren't serious.

**MRS. BIRD**: But the Solomons were serious and I knew it.

**WILLEY**: You were losing them. You were letting them off the hook.

**MRS. BIRD**: No, I was trying to be —

**WILLEY**: Don't interrupt me, let me finish, or you'll never be worth anything in real estate. Every sale has its own rhythm and its own pace and story. You have to know exactly when to move in. You've got to sock it to them and make them like it. If you lose the rhythm, you'll lose your confidence and you'll never make the sale.

**MRS. BIRD**: The fact remains that you stole my client.

**WILLEY**: You were *losing* them. In a week they'd have gone to somebody else. I was a pal of Lawson's, sure, but in this office I'm doing business, and I won't let you cost me a chance to do business.

**MRS. BIRD**: That's heartless. It's mean.

**WILLEY**: Ruth, grow up! This isn't your nice big old home on Charleston Road. This is the world!

(*Tight* CLOSE-UP *of* MRS. BIRD.)

**MRS. BIRD**: It's hard. It's hard.

**WILLEY**: Life is hard. Next time I see you backing off on a sale, I'll grab it

*Continued*

just the same.

**MRS. BIRD**: I could take you before the Real Estate Board.

**WILLEY**: They'll tell you exactly what I've just told you. Be careful not to make yourself into a joke.

**MRS. BIRD**: Right. Right! As long as I'm working out of this office, I'll keep my clients out of your way, and if I get a chance to steal any of yours, I'll do it.

**WILLEY** (*Big grin on his face*): You're welcome to try but you haven't got a chance. And if you think I'm crooked, wait till you run up against the other guys in town. They'll skin you alive.

**MRS. BIRD**: Not after this they won't.

(FADE OUT)

*Several months later:* MRS. BIRD *has joined the modern real estate firm of Langbourne Associates. She is discussing a business transaction with a client,* MR. ANDRAS SZEKELY.

NIGHTTIME — THE LANGBOURNE OFFICE

**MRS. BIRD**: Put your signature there, and there, Andras, and I'll get it into the Seymour office first thing tomorrow. You'll make money on this purchase.

**SZEKELY**: I know.

**MRS. BIRD**: You don't leave much to chance.

**SZEKELY**: Chance is a luxury I cannot afford. Long before I tried to get out of Hungary I had funds to my credit in Switzerland. It wasn't easy to transfer the money. I try not to leave anything to chance.

**MRS. BIRD**: You must have seen some very sad things.

**SZEKELY**: I have . . . children starving . . . men shot for no reason . . . I won't go on with it, but, you see, I like a little security. Property in my name. Friends who can count on me. I've done well since I came to Canada. I've got tenants ready to fill these houses. (*He indicates the papers he is in the process of signing.*) I'll make money while I'm paying for them, and I'll amass more capital for investment. You have to care for yourself in this world; nobody will do it for you.

**MRS. BIRD**: My husband took pretty good care of me.

**SZEKELY**: I've heard he left you only a small inheritance.

**MRS. BIRD**: It wasn't enough to live on, but it was money. I've been able to add to it. Now it's a respectable sum. I might do something with it in mortgages.

**SZEKELY**: You mean you've got between twenty and twenty-five thousand.

**MRS. BIRD**: A very good guess.

**SZEKELY**: I don't guess, Mrs. Bird.

**MRS. BIRD**: No, I suppose not.

**SZEKELY**: Twenty thousand dollars . . . or a bit more . . . is not a big sum, but it isn't negligible. There are things one could do with it, maybe by adding it in with other holdings. I'm not a great capitalist myself.

**MRS. BIRD**: How much have you to spare?

**SZEKELY**: Ah, that would be telling . . . but you are welcome to guess.

**MRS. BIRD**: Free at this moment, and ready to put into new properties? I'd say

*Continued*

around thirty-five thousand or a shade more.

(*They both laugh; they enjoy each other's company.*)

**SZEKELY**: That's why I like doing business with you, Ruth. You don't waste time over inessentials. So . . . what about it?

**MRS. BIRD**: What about what?

**SZEKELY**: Should we go in together? We can do much more with sixty thousand than we could separately. You want to sell me that enormous house of your cousin Stanley, correct?

**MRS. BIRD**: I think we could do something with the property that Stanley hasn't the initiative to see. It's a perfect location.

**SZEKELY**: For a riverfront hotel, perhaps?

**MRS. BIRD**: And a marina, that's an essential.

**SZEKELY**: It would require more capital than I can manage at present. Why not come in with me . . . as a permanent arrangement?

**MRS. BIRD**: What sort of arrangement?

**SZEKELY**: The usual one. A marriage contract. Your property would be completely safeguarded.

**MRS. BIRD**: You mean you'd like us to get married?

**SZEKELY**: It's the best way to manage this affair.

**MRS. BIRD**: That's very sensible of you, Andras, and very kind.

**SZEKELY**: Kindness has very little to do with it.

**MRS. BIRD**: I think it has. I'll tell you something, Andras, that I wouldn't say to anyone else. Lawson was a very selfish man. Yes, he was. An extremely selfish man. Everybody thought he was a darling, but he had all the life and I had none. I stayed home and listened to the neighbours and all our friends and relations singing his praises . . . my own family was off at the other end of Ontario and in time they died and I had no family but his . . . and to them I was always an outsider. . . . (*She takes a bit of a pause here. Camera comes in for* CLOSE-UP *on her bare, un-madeup middle-aged face. We want utter simplicity here!*) But I'll tell you something strange, Andras. Lawson was selfish and inconsiderate and foolish and improvident, but I loved him. I can't explain that. I just did. (*There should be the feeling of great loneliness and loss in her face here.*) In many ways he was an impossible man; sometimes he didn't seem to know I was a living person . . . he never talked to me very much. But he wasn't deliberately unkind. He just went ahead and did what he thought was right. He was not a great doctor, but his patients had confidence in him and they mostly got well. They took their life from him, and when they called for him, he always came . . . and then he was such a kind father. I don't know how it is. A lot of girls and women these days aren't interested in being married; they're afraid of just that kind of servitude. Perhaps rightly. I can't say. When you've been married, the way I was married, it marks you, and you can't do it a second time. I couldn't ever feel married to anybody else, even on a business basis.

**SZEKELY**: Very well, if that's how you feel, perhaps we can work out something else almost as suitable.

**MRS. BIRD**: You're not too upset?

**SZEKELY** (*Smiles*): I'm past fifty, Ruth. I've been disappointed before.

(FADE OUT)

*Hugh Hood*,
Contemporary Canadian writer

**VIII. Questions 60 to 70 in your Questions Booklet are based on this essay.**

## FAR HORIZONS AND NOBLE VISIONS SEEN SO CLEARLY ON A TRAGIC DAY

**from *The Edmonton Journal*, January 30, 1986**

It's a bright, sunny day here in Texas. Not a cloud in the sky. I step outside to relish the perfect weather. "They'll be having an exciting time in Cape Canaveral," I tell myself.

My phone rings. I hurry inside. My secretary, calling from my office, says with obvious excitement: "Have you been watching television?"

"I've been working."

"The space shuttle just blew up in Florida."

Long pause. "On the launch pad?"

"Offshore. One minute into flight."

Gasp. Then: "Oh, my God! Judith Resnik!"

Running to the television, I view the recaps with special horror as our 25th shuttle launch ends in great tragedy. Because of recent experiences, I felt myself to be part of that doomed crew, a participant in the disaster and, in an oblique way, part of the cause.

In the closing days of my service with the National Aeronautics and Space Administration I had been appointed to a small committee which had been given the job of trying to determine whether it would be prudent to invite an ordinary civilian to ride as a passenger aboard the shuttle in one of its future flights. The person would be chosen on the basis of his or her capacity to understand what was happening and to report upon it to the nation at large upon return.

I had been an ardent advocate of such civilian flight, and in our protracted debate I continued to support the idea, although others warned of the risks if something like today's accident were to happen. We considered all angles, weighing the possible triumphs against the equally possible defeats and concluded that it was a reasonable risk. When Sen. Jake Garn (R-Utah) and Rep. William Nelson (D-Fla.) soared aloft without incident and returned the same way, I applauded, even though I would personally have preferred to see figures who were less political take the first flights.

This morning, with the horror of what the spokesman is calling "obviously a major malfunction" deluging the television, I am of the same opinions I voiced in the committee. Our nation should be in space and we should be taking qualified civilians into the great adventure. We should be accumulating the hard-won knowledge and expertise that will allow us to erect in space permanent study stations from which we can conduct the unforeseen adventures of the next century. I remain as vigorous an advocate of experimentation in space today as I was before this tragedy.

Space is the premier adventure of our age and to restrict it to military and quasi[1]-military personnel would be improper. Poets, philosophers, writers, musicians

*Continued*

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[1] quasi — to some degree, partly

and graphic artists should also share in the great exploration. I often reminded my listeners that the far-flung explorations of Vasco da Gama attained real significance and immortality because he had had the prudence to take along with him the Portuguese poet Luis Vaz de Camoens, whose *Os Lusiadas* encapsulated the adventure of finding new worlds.

I also argued that since the cost of space exploration was so great it could be borne only by some vast national effort, it ought to provide opportunities for those who were paying the bill.

Finally, I reasoned that since the exploration and utilization of space could not be stopped, and since the United States fell back, as other nations were prepared to surge forward, we had an obligation to proceed: "We have opened the portals to a magnificent universe and we can never again close them."

Now Christa McAuliffe, a true civilian, a dedicated schoolteacher and mother, has perished, along with the rest of the dedicated crew, and I cannot escape a sense of guilt.

But during this long afternoon I think of other notable explorers who died in an attempt to extend human knowledge. In 1519, Ferdinand Magellan strove to be the first man to circumnavigate the globe but failed, slain in the Philippines, thousands of miles short of his goal. In 1845, Sir John Franklin probed the Arctic wastes, hoping to find the fabled Northwest Passage; instead, he found death for his entire crew, but the hunt for the passage continued.

In 1912, Robert Falcon Scott tried to conquer the Antarctic and perished with all his men, but some years later Admiral Richard Byrd made it with the aid of airplanes.

And this morning I think especially of those three young astronauts, Virgil Grissom, Ed White and Roger Chaffee, who, 19 years ago almost to the day, died in flames at Cape Kennedy. I salute them, also remembering that two years after their deaths, three other young men just like them reached the moon, and two walked upon it.

The human mind is restless. No matter how great the challenge, gallant men and women will step forward to tackle it.

The noble highway of exploration is pock-marked with craters indicating where some have met disaster, but it is also emblazoned with the banners of those who triumphed. People rarely achieve victories until others have suffered the defeats. And only rarely does one person's defeat deter another from striving for victory.

I see far horizons on this tragic day, noble ones that will be reached only when I am gone.

I also have always been an advocate for exploring space with unmanned vehicles. In the past few days an unmanned flight reached Uranus, an incredible three billion kilometres away, and sent back knowledge of inestimable value in enlarging our views as to the origins of the solar system and therefore of earth itself. Today a manned mission failed catastrophically. But on some day in the future the roles may be reversed. Progress is attained through this alternation of success and failure.

I am forlorn as the afternoon wanes because a friend of mine died in the failure. Judith Resnik and I worked together during a week-long seminar at Woods Hole trying to guess what the universe of space was going to be like in the year 2020, and she proved to be a dark-haired, winsome young woman with a will of

*Continued*

iron. She ended almost every discussion with a stern demand: "Get me into space before I'm an old woman."

Later, when I encountered her in the halls at NASA in Houston her complaint was invariable: "They are moving so slow! I want to get out there," and one day she exalted: "I'm going!" Judith Resnik could serve as the symbol of why men and women dare great things.

My final service for NASA occurred last week. They sent me a questionnaire asking for my opinion of a newsman who was applying for passage on the next flight. They asked if I thought he was responsible, likely to behave well under pressure, and able to communicate his experiences when he returned to earth. I wrote: "This man is doubly qualified. He's not only a born adventurer. He already knows space and how to talk about it. Grab him for the next go-round." I was speaking of my friend Walter Cronkite,[2] and I feel pretty sure that if he's selected, he'll go.

*James A. Michener,*
Contemporary American writer and reporter

[2] Walter Cronkite — well-known American broadcaster

# CREDITS

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QUESTIONS BOOKLET

# GRADE 12
# DIPLOMA EXAMINATION

## English 33

### Part B: Reading (Multiple Choice)

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# ENGLISH 33

## Part B: Reading (Multiple Choice)

## QUESTIONS BOOKLET

## GENERAL INSTRUCTIONS

Part B of the English 33 Diploma Examination has 70 questions in the Questions Booklet and eight reading selections in the Readings Booklet.

**BE SURE THAT YOU HAVE AN ENGLISH 33 QUESTIONS BOOKLET AND AN ENGLISH 33 READINGS BOOKLET.**

**YOU HAVE 2 HOURS TO COMPLETE THIS EXAMINATION.**

You may **NOT** use a dictionary, thesaurus, or other reference materials.

On the ANSWER SHEET provided, use ONLY an HB pencil to mark the CORRECT or BEST answer for each question as shown in the example below.

**Example**

Which month has 31 days?

**A.** February
**B.** April
**C.** November
**D.** December

**Answer Sheet**

A B C D
① ② ③ ●

Mark only one answer for each question. If you change an answer, erase your first mark completely. Answer all questions.

**JANUARY 1990**

**I. Read the excerpt from "Falling In Love" on pages 1 to 3 of your Readings Booklet and answer questions 1 to 13.**

1. The phrase "churned-up landscape" (lines 2-3) reflects the narrator's

   **A.** feelings of inner turmoil
   **B.** view of untamed nature
   **C.** distrust of external authority
   **D.** rejection of male companionship

2. The bus driver's "tone" (line 23) demonstrates that he believes that

   **A.** passengers are hard to please
   **B.** young people require firm direction
   **C.** women misunderstand polite manners
   **D.** people of limited means have little influence

3. The physical image of Lureen reflected in the bus window (lines 25-27) serves to emphasize her feeling of

   **A.** stubbornness
   **B.** frustration
   **C.** dejection
   **D.** fatigue

4. Lureen's concern about rejoining her parents (lines 49-51) suggests that they viewed her leaving home with

   **A.** fear
   **B.** anger
   **C.** indifference
   **D.** disapproval

5. That Lureen imagines a comfortable domestic scene in the backrooms of the store (lines 53-56) suggests that she is

   **A.** bored by routine housework
   **B.** desirous of emotional security
   **C.** contemptuous of traditional life-styles
   **D.** aware of the emptiness of the landscape

*Continued*

**6.** Which quotation BEST indicates Lureen's conclusions about her circumstances?

**A.** "The whole world is under destruction." (line 16)
**B.** "My luggage is an Eaton's shopping bag." (line 27)
**C.** "I have seen the light." (lines 50-51)
**D.** "So, okay, I played the game." (line 112)

**7.** In Larry's letter, his statement "*That's life*" (line 78) indicates that he is

**A.** admitting his love for Lureen
**B.** worrying about Lureen's reaction
**C.** telling Lureen to forget about him
**D.** disclaiming responsibility for hurting Lureen

**8.** In Larry's letter, the use of expressions such as "*dead-end*" (line 79), "*It just depends*" (line 82), and "*Tell the old lady*" (line 86) serves to

**A.** provide humor
**B.** create contrast
**C.** reveal character
**D.** emphasize setting

**9.** When the pet rabbit "scurries away without a backward glance" (line 131), he symbolizes

**A.** people's relationship with nature
**B.** animals' need for freedom
**C.** Larry's departure
**D.** Lureen's trip

**10.** Larry and Lureen are emotionally closest when they

**A.** listen to Larry's mother
**B.** communicate by letter
**C.** work on Larry's car
**D.** care for Satan

**11.** The attitude of Larry's mother toward her son suggests her

**A.** desire to solve his problems
**B.** surprise at his independence
**C.** irritation with his love of animals
**D.** lack of confidence in his reliability

*Continued*

**12.** The mood established in the story is reinforced MAINLY by

**A.** sound images
**B.** visual images
**C.** parallel structures
**D.** repeated questions

**13.** Which statement reflects the main idea of this excerpt?

**A.** Disappointments arouse memories of family expectations.
**B.** Women are frequently the victims in human relationships.
**C.** Concern for others is more important than individual choice.
**D.** Lack of commitment makes a lasting relationship impossible.

**II. Read "The Jelly Bean Man" on pages 4 and 5 of your Readings Booklet and answer questions 14 to 20.**

**14.** The Jelly Bean Man associates the speaker's wife with gods and goddesses (lines 14-16) in order to suggest that all individuals are

**A.** important
**B.** generous
**C.** powerful
**D.** proud

**15.** The Jelly Bean Man's references to Greek mythology indicate that he is

**A.** peculiar
**B.** religious
**C.** observant
**D.** knowledgeable

**16.** The quotation that suggests we should savor simple experiences is

**A.** " 'Kiss it and make it well' " (line 6)
**B.** " 'It's nothing to grin about' " (line 11)
**C.** "which she and I later ate" (line 20)
**D.** "slowly, with dairy butter" (lines 21-22)

**17.** The comparison of the Jelly Bean Man to an uncle or a grandfather implies

**A.** trust
**B.** respect
**C.** maturity
**D.** authority

**18.** The irony expressed in lines 34 to 37 is created by

**A.** vivid imagery
**B.** contrasting ideas
**C.** transitional devices
**D.** uncomplicated phrases

*Continued*

**19.** The speaker suggests that our society mistrusts innocence because

**A.** we are jealous and envious of others
**B.** the media focus on corruption and violence
**C.** our desire for possessions creates selfishness
**D.** we have become suspicious of the motives of others

**20.** Which of the following statements BEST expresses the theme of the poem?

**A.** The sharing of gifts brings people together.
**B.** Fear conditions us to limit our experiences.
**C.** Family relationships are stronger than all others.
**D.** Today's life-styles have increased the difficulties of parenting.

**III. Read the excerpt from *Candida* on pages 6 to 9 of your Readings Booklet and answer questions 21 to 30.**

**21.** In the statement "I suppose you thought it was a sort of barrel-organ" (line 9), Proserpine's tone is

**A.** understanding
**B.** inquisitive
**C.** sarcastic
**D.** accusing

**22.** By using the phrase "unmeasured stores" (line 42), Eugene suggests that

**A.** love is limitless
**B.** love can be bought
**C.** no one loves as he loves
**D.** life without love is preferable to rejection

**23.** According to Eugene, the "world's tragedy" (line 49) is that people

**A.** live without fear and shame
**B.** are too timid to express love
**C.** are too insecure to expect love
**D.** live within rules and restrictions

**24.** The emotion that prompts Proserpine's response "Talk about indifferent things" (line 67) is based upon

**A.** boredom
**B.** contempt
**C.** arrogance
**D.** defensiveness

**25.** The dramatic purpose of the stage direction for Proserpine to suddenly rise "*with her hand pressed on her heart*" (line 78) is to illustrate that

**A.** Eugene is physically appealing to her
**B.** Eugene's comments have deeply affected her
**C.** she recognizes that she cannot talk meaningfully with Eugene
**D.** she wishes to drop the offensive subject that Eugene has raised

*Continued*

**26.** Eugene says "Ah! I understand now" (line 111) when he suddenly realizes that

**A.** Candida loves him
**B.** Proserpine loves him
**C.** Proserpine loves Mr. Morell
**D.** Mr. Morell is loved by no one

**27.** Eugene's covering his face with his hands (lines 125-126) suggests that he feels

**A.** betrayed by Proserpine
**B.** betrayed by Mr. Morell
**C.** surprised by Proserpine's sympathy for him
**D.** depressed to learn that Candida might love her husband

**28.** The irony of the situation involving Eugene and Proserpine is that they

**A.** both love love for its own sake
**B.** love each other but don't know it
**C.** both love someone who is already married
**D.** recognize that love is a special need of shy people

**29.** At the end of the excerpt, Eugene realizes that

**A.** Proserpine despises him
**B.** Candida has misled him
**C.** he has misjudged his rival
**D.** he has lost Mr. Morell's trust

**30.** The quotation that BEST reflects the theme of this excerpt is

**A.** "We all go about longing for love" (line 31)

**B.** "Wicked people means people who have no love: therefore they have no shame" (lines 54-55)

**C.** "Does that stop the cry of your heart? for it does cry: doesn't it?" (lines 75-76)

**D.** "But it's horribly lonely not to hear someone else talk sometimes" (lines 105-106)

**IV. Read about Robin's decision to participate in a volunteer program on pages 10 to 15 of your Readings Booklet and answer questions 31 to 38.**

**31.** What is the MAIN emphasis in Kelly's postcard (H) message?

**A.** Information for a résumé
**B.** Need to accept challenges
**C.** Benefits of being a volunteer
**D.** Concern for the snowman contest

**32.** In her letter to Kelly (I), Robin indicates that she has decided to become a volunteer MAINLY as a result of

**A.** the speaker's presentation to her class
**B.** her desire for work experience
**C.** the apartment fire crisis
**D.** her cousin's experience

**33.** The MAIN purpose of the informational evening for potential volunteers for the Community Support Program (K) is to

**A.** enable potential volunteers to present their qualifications

**B.** persuade interested volunteers to sign up for the next training session

**C.** present potential volunteers with informational pamphlets and application forms

**D.** provide interested volunteers with information and to respond to their personal inquiries

**34.** In order for Robin to *apply* as a volunteer for the Community Support Program (K), she is required to

**A.** submit a composition
**B.** indicate her sponsor's name
**C.** agree to a personal interview if requested
**D.** take the next training session in February

*Continued*

35. The Community Support Program telephone service (L) that requires both training and experience is the

A. Information and Referral Line
B. Suicide Prevention Program
C. Distress Line
D. Health Line

36. The MAIN purpose of the Nalwen Food Bank (M) is to

A. assist subsidized individuals who are in need

B. provide a program that promotes co-operation and compassion

C. collect and distribute food to organizations caring for the needy

D. reduce the problems of waste by distributing excess food to the needy

37. According to the information that Robin received over the telephone (N), the volunteer program that she could begin immediately is the

A. CNIB Program
B. St. John Ambulance Program
C. Nalwen Hospital Teen Program
D. Nalwen Home for the Deaf Program

38. The volunteer program advertised on the Bulletin Board (O) that would increase Robin's understanding of people in crisis situations is described under the heading

A. ACTORS NEEDED
B. VOLUNTEERS NEEDED
C. ASSISTANT INSTRUCTORS
D. VOLUNTEER READING ASSISTANTS OF NALWEN

**V.** **Read the rough draft of Robin's composition on pages 16 and 17 of your Readings Booklet and answer questions 39 to 43.**

**39.** The MAIN purpose of the opening sentence of Robin's composition is to

**A.** create a mature tone
**B.** capture attention with an unusual beginning
**C.** promote curiosity by using a generalization
**D.** establish the main idea by stating a widely held concept

**40.** The revisions to paragraph 2 serve MAINLY to improve

**A.** vocabulary
**B.** punctuation
**C.** organization
**D.** sentence length

**41.** Robin's composition would be strengthened if paragraph 3 were

**A.** developed fully
**B.** deleted entirely
**C.** included elsewhere
**D.** rearranged structurally

**42.** The revisions to paragraph 4 improve

**A.** punctuation
**B.** organization
**C.** word choice
**D.** sentence structure

**43.** Paragraph 5 is effective MAINLY because it

**A.** reaffirms Robin's motivation
**B.** reveals Robin's sense of satisfaction
**C.** conveys Robin's cousin's contribution
**D.** indicates Robin's respect for experience

**VI. Read "Chasing the Puck" on page 18 of your Readings Booklet and answer questions 44 to 50.**

**44.** The scene at the speaker's childhood pond contrasts MOST DIRECTLY with the image of

- **A.** "drop-pass antics" (line 2)
- **B.** "well-heated ice-palace" (line 5)
- **C.** "the game ruined" (line 19)
- **D.** "the electric roar" (line 24)

**45.** The speaker says "it's not hard to let the mind wander" (line 6) because

- **A.** he is concerned about the violence of the game
- **B.** the hockey game triggers memories of his youth
- **C.** the high-speed action confuses him
- **D.** he is preoccupied with the past

**46.** The repeated use of infinitive phrases such as "to put" (line 7), "to clear" (line 8), "to find" (line 10), "to bring" (line 16), and "To come" (line 17) alerts the reader that the speaker is

- **A.** reminiscing
- **B.** fantasizing
- **C.** confused
- **D.** tired

**47.** The information in parenthesis in lines 11 and 12 is provided to

- **A.** add details about the setting
- **B.** develop an element of suspense
- **C.** foreshadow the injury of the goalie
- **D.** suggest the character of the speaker

**48.** The goalie's reaction to being injured is indicated by

- **A.** "five minutes' agony" (line 14)
- **B.** "rubbed almost through the skin" (line 15)
- **C.** "him turning away from me" (lines 19-20)
- **D.** "poised for the shot, the net-bulge" (line 24)

*Continued*

**49.** The speaker's interest in hockey probably developed from his

**A.** being part of a crowd
**B.** having played as a child
**C.** access to professional games
**D.** attachment to individual stars

**50.** The DOMINANT mood established in the poem is one of

**A.** reflection
**B.** regret
**C.** expectancy
**D.** disappointment

**VII. Read the excerpts from *Friends and Relations* on pages 19 to 21 of your Readings Booklet and answer questions 51 to 59.**

**51.** Mrs. Bird wants her "name on the offer" (line 4) in order to gain

**A.** publicity
**B.** income
**C.** clients
**D.** status

**52.** Mrs. Bird's statement "I have to clothe myself . . . run my car and pay for my advertisements" (lines 5-6) suggests that

**A.** her earnings are inadequate
**B.** she needs help in budgeting
**C.** she wants sympathy from others
**D.** her income does not match her ambitions

**53.** That Willey is more interested in profits than in the best deal for his clients is BEST shown in

**A.** "you had them all confused" (lines 11-12)

**B.** "You have to sense how close the prospect is to a commitment" (lines 17-18)

**C.** "you'll never be worth anything in real estate" (lines 23-24)

**D.** "You have to know exactly when to move in" (line 25)

**54.** Mrs. Bird's statement "Not after this they won't" (line 48) suggests that she will

**A.** challenge the Real Estate Board
**B.** undersell Willey's future deals
**C.** protect all her future sales
**D.** quit real estate

*Continued*

**55.** Mrs. Bird's understanding acceptance of her husband is BEST suggested in

**A.** "he never talked to me very much. But he wasn't deliberately unkind" (lines 113-114)

**B.** "He was not a great doctor, but his patients had confidence in him" (lines 115-116)

**C.** "when they called for him, he always came" (line 117)

**D.** "When you've been married, the way I was married, it marks you" (lines 120-121)

**56.** The statement "I've been disappointed before" (line 126) indicates that Szekely is

**A.** bitter and sarcastic
**B.** angry and resentful
**C.** practical and realistic
**D.** indifferent and uncaring

**57.** Willey and Szekely differ MOST in their attitude toward

**A.** making profits
**B.** the role of women
**C.** leaving business to chance
**D.** the importance of social status

**58.** Mrs. Bird's attitude after she joins Langbourne Associates is

**A.** greedy
**B.** confident
**C.** unfeeling
**D.** inquisitive

**59.** The emphasis in these excerpts is on

**A.** creating suspense
**B.** structuring the plot
**C.** developing character
**D.** establishing the setting

**VIII. Read "Far Horizons and Noble Visions Seen So Clearly on a Tragic Day" on pages 22 to 24 of your Readings Booklet and answer questions 60 to 70.**

**60.** The writer's role in the space shuttle program was that of

**A.** a political representative
**B.** a civilian passenger
**C.** an educator
**D.** an adviser

**61.** The word "oblique" (line 13) means

**A.** indirect
**B.** involved
**C.** impartial
**D.** important

**62.** According to the committee (lines 15-20), suitable civilians for future shuttle flights were those people who were

**A.** intelligent and able to communicate
**B.** physically and psychologically fit
**C.** trainable and able to adapt
**D.** adventurous and patriotic

**63.** The phrase "deluging the television" (line 30) means that all TV channels were

**A.** receiving numerous phone calls
**B.** reporting only the space shuttle disaster
**C.** analysing the complex technical problems
**D.** having problems organizing the information coming in

**64.** The writer believes that "permanent study stations" (line 33) should be built in space so that

**A.** progress in space will be recorded historically
**B.** civilian participation will be assured
**C.** future exploration will be continued
**D.** national pride will be enhanced

*Continued*

**65.** When the writer says "I salute them" (line 64), he is expressing his

**A.** patriotism
**B.** sorrow
**C.** regret
**D.** respect

**66.** The description of the highway of exploration as "pock-marked with craters" (line 69) is effective because of the writer's use of

**A.** simile
**B.** metaphor
**C.** alliteration
**D.** exaggeration

**67.** The CLEAREST suggestion that the continuation of space travel is inevitable is found in

**A.** " 'We have opened the portals to a magnificent universe and we can never again close them' " (lines 48-49)

**B.** "The human mind is restless. No matter how great the challenge, gallant men and women will step forward to tackle it" (lines 67-68)

**C.** "I see far horizons on this tragic day, noble ones that will be reached only when I am gone" (lines 73-74)

**D.** "Judith Resnik and I worked together during a week-long seminar at Woods Hole trying to guess what the universe of space was going to be like in the year 2020" (lines 83-85)

**68.** Characterizing Judith Resnik as having "a will of iron" (lines 85-86) suggests that she was

**A.** tireless
**B.** courageous
**C.** aggressive
**D.** determined

*Continued*

**69.** The purpose of the numerous historical references is to

**A.** illustrate the futility of experimentation
**B.** highlight the dangers involved in space exploration
**C.** illustrate that challenge may overshadow cautious behavior
**D.** show that failure has always been a part of human endeavor

**70.** Which quotation BEST expresses the theme of the passage?

**A.** "Our nation should be in space and we should be taking qualified civilians into the great adventure." (lines 31-32)

**B.** "Space is the premier adventure of our age and to restrict it to military and quasi-military personnel would be improper." (lines 36-37)

**C.** "Progress is attained through this alternation of success and failure." (lines 80-81)

**D.** "Judith Resnik could serve as the symbol of why men and women dare great things." (lines 90-91)

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

## Français 30

### Partie A: Production écrite

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# FRANÇAIS 30

## Partie A: Production écrite

## DESCRIPTION

Dans cet examen, il vous est demandé de faire DEUX rédactions.

Durée: Deux heures et demie

| | | Page |
|---|---|---|
| Premier sujet de rédaction: | Suggestion de temps: 50 à 60 minutes<br>Valeur: 40% de l'examen | 3 |
| Deuxième sujet de rédaction: | Suggestion de temps: 80 à 90 minutes<br>Valeur: 60% de l'examen | 12 |

## INSTRUCTIONS

**Lisez tout l'examen avant de commencer à écrire.**

Répartissez soigneusement votre temps.

Vous pouvez seulement utiliser un dictionnaire français et un code de verbes (Bescherelle ou autre).

Prière d'écrire le propre à l'encre bleue ou noire.

N'écrivez nulle part votre nom dans le livret d'examen.

Les rédactions sont basées sur la fable *La Grenouille qui se veut faire aussi grosse que le boeuf* ci-dessous.

## LA GRENOUILLE QUI SE VEUT FAIRE AUSSI GROSSE QUE LE BOEUF

Une grenouille vit un boeuf
Qui lui sembla de belle taille.
Elle qui n'était pas grosse en tout comme un oeuf,
Envieuse s'étend, et s'enfle, et se travaille
Pour égaler l'animal en grosseur,
Disant: "Regardez bien, ma soeur;
Est-ce assez? dites-moi. N'y suis-je point encore?
— Nenni. — M'y voici donc? — Point du tout. — M'y voilà?
— Vous n'en approchez point." La chétive pécore
S'enfla si bien qu'elle creva.
Le monde est plein de gens qui ne sont pas plus sages:
Tout bourgeois veut bâtir comme les grands seigneurs;
Tout petit prince a des ambassadeurs;
Tout marquis veut avoir des pages.

*Jean de La Fontaine*
poète français (1621-1695)

**PREMIER SUJET (Suggestion de temps: 50 à 60 minutes)**

Après avoir raconté l'histoire de la grenouille et du boeuf, Jean de La Fontaine conclut que "Le monde est plein de gens qui ne sont pas plus sages."

Ce jugement sur le manque de sagesse chez les contemporains de La Fontaine s'applique-t-il à notre monde d'aujourd'hui? Êtes-vous d'accord que beaucoup de gens se fixent un but irréaliste?

**Imaginez que vous écrivez à un ami ou une amie à qui vous voulez exposer votre opinion sur ce sujet. Dans votre lettre, exprimez votre opinion et défendez vos idées par des exemples concrets de la vie moderne et de votre expérience personnelle.**

**PLAN/BROUILLON**

Les pages paires supplémentaires sont prévues pour le PLAN et le BROUILLON.

**BROUILLON**

## PROPRE

Les pages impaires supplémentaires sont prévues pour le PROPRE.

## BROUILLON

PROPRE

BROUILLON

## PROPRE

## BROUILLON

## PROPRE

## DEUXIÈME SUJET (Suggestion de temps: 80 à 90 minutes)

La fable *La Grenouille qui se veut faire aussi grosse que le boeuf* nous présente une grenouille qui ne connaît pas ses limites et ne les accepte pas.

Vous avez étudié, **dans vos cours de français au secondaire,** des oeuvres littéraires dans lesquelles vous avez rencontré un ou plusieurs personnages victimes de leur ambition ou qui, au contraire, ont atteint leur idéal grâce à leur ambition.

**Choisissez une ou deux de ces oeuvres et montrez, à l'aide d'exemples précis tirés de ces oeuvres, l'effet de l'ambition sur la vie d'une personne.**

**Suggestions pour la rédaction:**

- **CHOISISSEZ** soigneusement vos oeuvres. Vous pouvez choisir des poèmes, des nouvelles, des pièces de théâtre, des romans ou des films.
- **CENTREZ** votre rédaction sur une idée principale. Donnez des détails à l'appui de votre idée principale.
- **ORGANISEZ** bien votre rédaction afin d'exprimer vos idées de façon claire et cohérente.
- **RELISEZ** et **CORRIGEZ** votre travail.

## DEUXIÈME SUJET

Identifiez l'oeuvre ou les oeuvres que vous allez utiliser. Énoncez votre idée principale ou votre thèse.

Auteur(s) et titre(s)
(ou source) ______________________________

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Idée principale ______________________________

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### PLAN/BROUILLON

Les pages paires supplémentaires sont prévues pour le PLAN et le BROUILLON.

**BROUILLON**

## PROPRE

Les pages impaires supplémentaires sont prévues pour le PROPRE.

## CRÉDITS

Jean de La Fontaine. ''La Grenouille qui se veut faire aussi grosse que le boeuf'' dans *Les plus belles pages de la poésie française* (Sélection du Reader's Digest (Canada) Ltée.

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FRANÇAIS 30 — PARTIE A

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FRANÇAIS 30 — PARTIE A

LIVRET DE TEXTES

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

## Français 30

### Partie B: Compréhension écrite
### (choix multiples)

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# FRANÇAIS 30

## Partie B: Compréhension écrite (choix multiples)

## LIVRET DE TEXTES

### INSTRUCTIONS GÉNÉRALES

Cet examen de Français 30 comporte 70 questions présentées dans le livret de questions. Ces questions portent sur les textes dans ce livret de textes.

**VÉRIFIEZ QUE VOUS AVEZ BIEN UN LIVRET DE QUESTIONS ET UN LIVRET DE TEXTES.**

**VOUS AVEZ 2 HEURES POUR FAIRE CET EXAMEN.**

VOUS N'ÊTES PAS AUTORISÉS à vous servir de dictionnaire, ou de tout autre ouvrage de référence.

**JANVIER 1990**

**I. "Le Chien et le Maître" est le texte sur lequel sont basées les questions 1 à 10 aux pages 1 et 2 du livret de questions.**

## LE CHIEN ET LE MAÎTRE

*M. Bergeret vit seul avec sa servante Angélique. Celle-ci entreprend de soulager la solitude de son maître en lui amenant un petit chien, Riquet. M. Bergeret installe Riquet dans son bureau, mais hésite à le garder, parce que le chien est trop bruyant. Cherchant à prendre un livre sur le dernier rayon de sa bibliothèque, M. Bergeret monte sur un vieux tabouret canné qui cède sous son pied. Il se retrouve à terre, "chaussant d'une jambe la chaise crevée" et tout le corps (sa machine, comme il dit, ligne 1) meurtri.*

Comme sa machine n'était pas gravement endommagée, il rassembla ses esprits: il songeait déjà à retirer sa jambe droite du tabouret dont elle s'était si malheureusement bottée et à se relever de préférence sur le côté droit, qui n'avait point de mal. Même, il y tâchait, quand il sentit un souffle chaud sur sa joue. Et, tournant ses prunelles que la douleur et l'horreur avaient remontées, il vit contre son visage le visage de Riquet.

Au bruit de la chute, Riquet avait sauté en bas du fauteuil et couru vers son malheureux maître. Près de lui, maintenant, il s'agitait plein de trouble, avançait, reculait. Tour à tour il s'approchait par sympathie et il fuyait de peur d'un danger mystérieux. Il concevait très bien qu'un malheur était arrivé, mais il n'avait pas l'esprit assez réfléchi pour en découvrir les causes: de là son inquiétude. Sa fidélité l'attirait près de l'ami souffrant, sa prudence l'arrêtait au bord de l'endroit funeste. Enfin, encouragé par le calme et le silence qui s'étaient rétablis, de ses deux pattes de devant qui tremblaient, il embrassa M. Bergeret au cou, et le regarda avec des yeux de crainte et d'amour. Et le maître écroulé sourit, et le chien lui lécha le bout du nez. Ce fut un grand réconfort pour M. Bergeret, qui dégagea sa jambe droite, se mit debout et regagna son fauteuil en boitant et en souriant.

Riquet y avait déjà repris sa place. Ses yeux ne luisaient plus que par la fente étroite des paupières rapprochées. Il semblait ne plus songer à l'aventure qui venait de les jeter tous les deux dans un si grand émoi. Ce petit être vivait dans le moment présent, sans souci des temps révolus, non qu'il manquât de mémoire, puisqu'il se souvenait non seulement de son passé, mais du passé profond de ses ancêtres, et que sa tête, grosse comme le poing, était un riche magasin de connaissances utiles; mais il ne se délectait point à se souvenir et la mémoire n'était pas pour lui, comme pour M. Bergeret, une muse divine.

Et M. Bergeret, passant la main sur le poil court et lisse de son compagnon, dit ces paroles affectueuses:

"Chien, au prix de ton repos, qui doit t'être cher, tu es venu à moi quand j'étais terrassé et consterné. Tu n'as pas ri, comme aurait fait à ta place tout jeune individu de mon espèce. Il est vrai que tu n'as pas le sentiment du ridicule et que, si pour toi la nature a des aspects joyeux et des aspects terribles, elle n'en a point de comiques. Mais par cela même, par ta gravité naïve, tu fais le

*suite p. 2*

compagnon le plus sûr que l'on puisse avoir. Je t'ai d'abord inspiré de la confiance et de l'admiration et voici que je t'inspire de la pitié.

"Chien, quand nous nous sommes rencontrés dans la vie, nous venions de deux points de la création éloignés l'un de l'autre, bien éloignés. Nous appartenons à deux espèces différentes. Ce que j'en dis n'est point pour en prendre avantage, mais au contraire par un sentiment de fraternité universelle. Il y a deux heures à peine que nous nous connaissons. Ma main ne t'a point nourri. Quelle charité obscure a jailli pour moi de ta pauvre petite âme? Ta sympathie est un charmant mystère."

*Anatole France*
écrivain français (1844-1924)

**II. "Pour quelques barils de plus" est le texte sur lequel sont basées les questions 11 à 19 aux pages 3 et 4 du livret de questions.**

## POUR QUELQUES BARILS DE PLUS

*tiré de* **L'Actualité**, *juin 1987*

*Le plus grand troupeau de caribous d'Amérique est menacé par l'appétit des grandes compagnies pétrolières.*

Qui aurait cru que cet immense territoire sauvage de plus d'un million et demi d'acres, au nord-est de l'Alaska, juste à la frontière canadienne, serait un jour un champ de bataille politique? Depuis sept ans, la plaine côtière de la mer de Beaufort, qui forme la partie nord du Parc de conservation de l'Arctique, est le théâtre d'une polémique entre groupes écologistes canadiens et américains, et multinationales du pétrole. Le mois dernier, l'administration Reagan jetait de l'huile sur le feu en appuyant sans réserve les compagnies pétrolières.

C'est le ministre américain de l'Intérieur, Donald Hodel, qui a fait connaître la position de son gouvernement dans ce dossier. Les biologistes, les environnementalistes, les écologistes-conseils de son propre ministère, de même que le gouvernement canadien et tous les Verts des deux pays, l'ont pourtant prévenu des dangers que représentent pour cet environnement la prospection et l'exploitation pétrolières. Mais Hodel considère toujours que l'augmentation des approvisionnements énergétiques pèse plus que le risque d'un désastre écologique. "Si nous faisons attention, il ne devrait pas y avoir de problème."

Le gouvernement canadien s'est farouchement opposé au projet. Aux États-Unis, les Verts ont fait savoir qu'ils feraient pression auprès du Congrès. "En Alaska, plus de 1 000 milles de côte arctique sont déjà voués à la prospection pétrolière", dit Susan Alexander de la Wilderness Society d'Alaska. "Pourquoi compromettre encore 125 milles de cette côte pour s'assurer de quelques mois de pétrole de plus?"

Les environnementalistes canadiens considèrent que ce projet menace la harde Porcupine, le plus important troupeau de caribous en Amérique, 185 000 animaux nomades que le Canada et les États-Unis ont depuis toujours spontanément protégés sans qu'aucun accord n'ait jamais été signé entre les deux pays. Cette harde passe la majeure partie de l'année dans les Territoires du Nord-Ouest et dans le Yukon. Mais au printemps, elle migre dans les montagnes du nord de l'Alaska et s'en va brouter les terres que convoitent les voraces multinationales du pétrole. Selon une étude récente, l'activité pétrolière réduirait les effectifs de la harde Porcupine de 40%. Hodel a rétorqué qu'il y avait probablement là "une erreur de calcul".

Certains défenseurs du projet sont allés jusqu'à prétendre que l'activité pétrolière serait profitable aux caribous! Le mois dernier, à New York, Thomas Niles, l'ambassadeur américain au Canada, a soutenu qu'il avait été démontré (comment? par qui?) que les animaux étaient attirés par les installations pétrolières et les oléoducs. "Lorsqu'il fait 40 sous zéro, ils sont bien heureux de s'abriter sous les pipelines qui dégagent une certaine chaleur." En décembre dernier, Hodel a déclaré que le Canada était de mauvaise foi dans cette affaire et cachait ses

*suite p. 4*

intérêts réels. "Il se sert en fait des caribous pour bloquer notre projet afin de continuer à nous vendre son huile et son gaz."

Les Canadiens en poste à Washington vont continuer, en dépit des allégations de Hodel, de défendre leur point de vue. "Ça peut durer longtemps", dit James Wright, chef de la section écologique de l'ambassade canadienne. Ce projet-là ne passera pas facilement au Congrès." À Whitehorse, capitale du Yukon, des représentants du gouvernement veulent inviter des membres du Congrès à visiter les lieux et veulent aussi envoyer des manifestants à Washington. Selon Norma Kassi, député NPD de Old Crow, un village du Yukon perdu au-delà du cercle polaire — et dont les 250 habitants vivent de l'exploitation artisanale de la harde depuis des temps immémoriaux — "le projet des multinationales américaines serait désastreux. Il détruirait notre culture."

Une consolation pour les Canadiens: l'appui des Verts américains. Certains d'entre eux, dont Morris Udall, président démocrate de la chambre des représentants, veulent retarder la loi jusqu'à la fin du mandat de Reagan. Les compagnies pétrolières elles-mêmes reconnaissent que le projet pourrait être remis à plus tard. Selon John Gore, vice-président aux affaires gouvernementales de BP: "Il est plus facile de bloquer une loi que de la contourner. On a un sérieux problème sur les bras."

*Ian Austen*

**III. "Bruno Bettelheim: Pour ne pas 'rater' ses enfants" est le texte sur lequel sont basées les questions 20 à 28 aux pages 5 et 6 du livret de questions.**

## BRUNO BETTELHEIM: POUR NE PAS "RATER" SES ENFANTS

*Bruno Bettelheim est l'un des grands investigateurs mondiaux de la psychologie infantile. Il s'exprime, dans cet interview de Sylvie Halpern dans la revue* L'Actualité, *sur les rapports familiaux face aux conditions de la société moderne.*

**L'ACTUALITÉ**: Est-ce qu'avoir un enfant, ça veut nécessairement dire être dérangé? Et prendre aussi le risque de faire des erreurs?

**B. BETTELHEIM**: Personne n'est parfait et il ne faut surtout pas essayer de l'être. Ce qui compte, c'est de réaliser qu'on fait des erreurs et de les corriger. Et, c'est sûr, les enfants font interférence dans tout: ils vous obligent à vous ajuster sur eux, ils ont de fortes exigences de temps, d'énergie, d'émotions. Ce n'est pas facile, et chaque famille doit essayer de trouver son équilibre.

**L'ACTUALITÉ**: Vous avez parlé de perfection. Vous vous révoltez souvent dans vos livres contre l'enfant parfait, celui qui sait tout très tôt, contre la scolarisation précoce, entre autres.

**B. BETTELHEIM**: Oui, aux États-Unis, par exemple, on met trop de pression scolaire et trop tôt sur les enfants. Quand ils sont jeunes, les enfants apprennent bien plus en jouant qu'à travers un enseignement systématique. Il faut donc leur laisser le temps, la liberté de jouer. Or, on les enferme bien trop souvent dans un horaire très chargé.

**L'ACTUALITÉ**: Aujourd'hui la plupart des mères travaillent, de plus en plus pour leur épanouissement personnel. Et elles se sentent souvent très coupables de cette satisfaction . . .

**B. BETTELHEIM**: Je ne vois pas pourquoi elles devraient se sentir coupables. Il vaut mieux qu'elles se concentrent sur le fait d'être de bonnes mères quand elles sont avec leurs enfants. Je ne pense pas qu'il soit absolument nécessaire qu'une mère consacre tout son temps à ses enfants. J'ai même connu des mères qui restaient à la maison et qui ont complètement raté l'éducation de leurs enfants. La réussite d'une éducation n'a rien à voir avec la quantité de temps qu'on consacre aux enfants, c'est une question d'attitude, de sentiments à l'égard de l'enfant, de la maternité et de la paternité. D'ailleurs, peu importe la personne qui garde l'enfant pendant la journée, ses parents restent toujours les personnes les plus importantes de sa vie. J'ai eu beaucoup de patients qui ont été gardés enfants. Ils n'en parlent jamais, ce sont toujours leurs parents qui m'en parlent!

Ce qui est bien plus important, c'est que le peu de temps que l'on passe avec son enfant, on le passe bien, et que ces moments apportent quelque chose aux deux. Des études ont été faites auprès des deux groupes de mères — celles qui travaillent et celles qui sont au foyer — et elles ont bien montré que la quantité de temps que les unes et les autres passent réellement avec leur enfant est exactement la même. La vraie différence entre celles qui ne

*suite p. 6*

veulent pas être embêtées par leurs enfants et celles qui sont ravies de passer du temps avec eux.

**L'ACTUALITÉ**: Et de la gardienne-télévision, qu'en pensez-vous?

**B. BETTELHEIM**: Le problème c'est que souvent la télévision n'est pas utilisée en fonction des intérêts immédiats de l'enfant. C'est sûr que c'est une distraction. Comme toute distraction, elle détourne l'enfant de la recherche de ses propres occupations. Les enfants voient maintenant à la télévision tout ce qui se passe dans le monde avant même de commencer à traverser leur rue tout seuls! Ils sont beaucoup trop stimulés par la télévision et souvent au-delà de leur propre capacité de compréhension, parce que la plupart des parents ne consacrent pas d'énergie à leur commenter et expliquer ce qu'ils voient à l'écran. Alors, faute de mieux, les enfants se raccrochent à leurs vedettes de la télévision puisqu'il n'y a pas de vraies grandes personnes autour pour converser avec eux. Après tout, ce sont les enfants qui regardent la télévision, mais ce sont les parents qui l'achètent. Alors, si vous collez votre enfant devant le poste, donnez-vous au moins la peine de parler avec lui de ce qu'il y a vu!

**L'ACTUALITÉ**: Il y a une foule de manuels d'éducation et de psychologie infantile qui sont souvent remplis de conseils contradictoires. Comment est-ce que les parents qui veulent bien faire les choses peuvent s'y retrouver?

**B. BETTELHEIM**: Il n'y a pas d'enfant type, pas de parent type. Chaque enfant est différent, chaque parent, et chaque relation parent-enfant est unique. Comme chaque histoire d'amour! Les conseils généraux ne sont donc pas très utiles. C'est un peu comme les médicaments vendus sans ordonnance: avant de prendre un médicament, il faut que votre médecin ait diagnostiqué votre mal. De la même façon, les conseils doivent s'appuyer sur une analyse sérieuse de tous les détails du problème, sur une compréhension de la personnalité de l'enfant et des parents. C'est pour cela que, dans mon dernier livre, j'encourage les parents à trouver leurs propres solutions à partir de leur analyse personnelle de leur situation familiale. D'ailleurs, la meilleure façon de rendre un enfant sûr de lui, c'est de l'être soi-même. Les enfants en apprennent beaucoup plus en regardant agir leurs parents qu'à travers ce que ceux-ci peuvent leur dire.

**L'ACTUALITÉ**: Mais pour trouver ces solutions, est-ce que l'amour suffit?

**B. BETTELHEIM**: Non, je ne crois pas. L'amour est terriblement important, mais c'est aussi une émotion égoïste: l'amour peut faire très mal. Il ne suffit pas de se dire: "J'aime mon enfant, peu importe comment j'agis avec lui", ce qui compte, c'est la façon dont cet amour s'exprime. J'ai souvent vu des gens qui étaient convaincus d'aimer leur enfant et de ne vouloir que son bien mais qui le mettaient sous une pression énorme pour qu'il réussisse: ils lui ont fait beaucoup de mal.

*Sylvie Halpern*

**IV. "L'Albatros" est le texte sur lequel sont basées les questions 29 à 38 aux pages 7 et 8 du livret de questions.**

## L'ALBATROS

Souvent, pour s'amuser, les hommes d'équipage
Prennent des albatros, vastes oiseaux des mers,
Qui suivent, indolents compagnons de voyage,
Le navire glissant sur les gouffres amers.

À peine les ont-ils déposés sur les planches,
Que ces rois de l'azur, maladroits et honteux,
Laissent piteusement leurs grandes ailes blanches
Comme des avirons traîner à côté d'eux.

Ce voyageur ailé, comme il est gauche et veule!
Lui, naguère si beau, qu'il est comique et laid!
L'un agace son bec avec un brûle-gueule,
L'autre mime, en boitant, l'infirme qui volait!

Le Poète est semblable au prince des nuées
Qui hante la tempête et se rit de l'archer;
Exilé sur le sol au milieu des huées,
Ses ailes de géant l'empêchent de marcher.

*Charles Baudelaire*
écrivain français (1821-1867)

**V. "Le Secret de Justine" est le texte sur lequel sont basées les questions 39 à 49 aux pages 9 et 10 du livret de questions.**

## LE SECRET DE JUSTINE

Un jour, le secret de Justine devint si lourd qu'elle ne se sentit plus capable de le porter. Rien n'avait paru pourtant sur son visage ou dans ses gestes ce matin-là.

Rentrant de traire la chèvre, elle avait trouvé Varan, son homme, qui terminait lui aussi la besogne d'aube et qui avait faim.

— La soupe mijote, dit Justine, mets-toi là que je te serve.

Pas plus que les autres matins, Varan ne leva la tête. Il en avait été ainsi depuis le mariage. Varan avait mené Justine à partir de la noce jusqu'à cette maison basse accrochée à la pente et il lui avait montré le travail.

Là serait le sol à bêcher pour Justine, lui se gardait le grand champ de grain. Elle verrait aux poules, et lui aux gorets de la porcherie. Il occuperait l'étable et en songerait au bien, mais elle trairait la chèvre et emmènerait paître les trois brebis aux temps de la mauvaise herbe, alors que les seules paissances qui restent sont tout là-haut, au-delà du premier plateau.

— À chacun son effort, avait-il dit, et nous vivrons.

Vivre, soit respirer, manger ce qui se peut, peiner de l'aurore au couchant. Terminer un jour ce que l'on sait devoir recommencer au lendemain.

Interminablement.

Et ainsi il en fut.

Varan parlait peu. Il ne dit que l'utile, pointant du doigt ou du mot, et que cela suffise. Il mangeait lourd chaque soir, dormait aussitôt. S'il se tournait parfois vers Justine et s'emparait d'elle en silence, cela n'était qu'après un temps d'arrêt dans sa besogne, lorsque la pluie a tout immobilisé dans les pentes, ou lorsque la neige aveugle tant qu'il vaut mieux rester au chaud de l'âtre et attendre que reviennent les cheminements sûrs à travers la montagne.

Mais rien ne manquait vraiment sous ce toit. On y voyait l'assiette pleine, et il y avait toujours du bois pour le feu, du droguet pour la jupe de rechange, des laines pour les refroidissements de Varan.

Dans l'armoire, il y avait des pots, des plats et des gobelets; dans le soupente derrière la chambre, les draps de lin rude et les couvre-lits de la grand-mère, chauds et douillets.

À Justine, qui avait été vaillante jeunette et tout aussi loquace que rieuse, il vint à manquer de mots, faute de les pouvoir dire d'emblée comme autrefois. Il lui vint le silence, état peu connu de ses pareilles des hameaux de la plaine. S'en serait-elle plainte que Varan n'aurait vraiment rien su comprendre.

— Parler? aurait-il dit. Et de quoi, sinon de la chose du jour?

Mais même de celle-là, cette chose, il n'en parlait que bien frugalement.

Justine apprit à savoir contempler, ce qui est grand bien. Elle observa le couchant et l'admira comme elle ne l'avait jamais fait auparavant. Elle s'émerveilla de toutes choses qu'à tant parler au long de sa jeunesse elle ne s'était pas arrêtée à regarder vraiment.

*suite p. 9*

Il lui vint souvent même d'admirer son Varan, qui était puissant et dont les cheveux noirs luisaient au feu de l'âtre.

Elle le regardait et à la fin, bien des mois après le mariage, elle en était à se dire que la beauté de cet homme, et sa force, et son attirance, c'était justement son silence.

Le temps se vécut. D'abord exaspérant, lorsqu'elle revint de la noce et n'entendit rien des mots qu'elle espérait. Et puis, patiemment, ce même temps tissa une fine dentelle de belles heures graves et sereines, dans une longue paix tendre, que ne rompaient jamais des mots sans suite, mal réfléchis, qui eussent brisé le beau rythme des pensées et des actes.

Et à mesure que se faisait ce temps nouveau, Justine sentait s'accroître en elle le poids de son secret.

Puis il fut si lourd, il fut si écrasant, qu'il en devint impérieux. Alors elle comprit qu'il lui fallait à tout prix le révéler à Varan. Il ne fallait plus attendre: demain, ce serait bien tard pour le dire.

Ce soir-là, après que Varan se fut assis devant le grand bol de soupe grasse, Justine vint près de lui, se pencha et posa sa main sur la nuque dure de son homme.

— Varan, dit-elle, écoute-moi.

Il leva les yeux et la regarda.

— Je t'aime, Varan.

*Yves Thériault*
écrivain québécois (1915-1983)

**VI. "Les deux 'Royaumes' " est le texte sur lequel sont basées les questions 50 à 60 aux pages 11 et 12 du livret de questions.**

## LES DEUX 'ROYAUMES'

*Thérèse Tarde est violoniste dans un minable orchestre de café. Malgré une vie misérable entre un père avide d'argent et paresseux et une mère débauchée, elle a gardé le coeur pur. Un amour sincère la lie au grand musicien Florent qui veut l'épouser. Elle a honte de ses parents; pourtant elle accepte de passer quelques jours, avec son père, chez son fiancé.*

*La maison de son fiancé, avec son luxe, ses livres, ses portraits de famille, semble dire à Thérèse qu'elle n'est pas faite pour elle. Thérèse se rend compte qu'elle doit renoncer à Florent parce qu'elle pense ne pouvoir jamais vivre dans ce milieu. Florent, qui devine sa détresse, voudrait la sauver d'elle-même.*

**THÉRÈSE,** *à Florent*: Tu ne dis plus rien? Tu sens que je suis loin de toi maintenant que je m'accroche à lui . . . Ah! tu m'as tirée à toi, tu sais, avec ta grande force et ma tête se cognait à toutes les pierres du chemin . . . Mais je t'ai échappé, maintenant. Tu ne pourras plus jamais m'atteindre.

**FLORENT**: Non, Thérèse, tu te débats, mais tu ne m'as pas échappé.

**THÉRÈSE**: Si, maintenant que je suis au désespoir, je t'ai échappé, Florent. Je viens d'entrer dans un royaume où tu n'es jamais venu, où tu ne saurais pas me suivre pour me reprendre. Parce que tu ne sais pas ce que c'est que d'avoir mal et de s'enfoncer. Tu ne sais pas ce que c'est que se noyer, se sâlir, se vautrer . . . Tu ne sais rien d'humain, Florent . . . (*Elle le regarde.*) Ces rides, quelles peines les ont donc tracées? Tu n'as jamais eu une vraie douleur . . . Tu n'as jamais haï personne, cela se voit à tes yeux, même ceux qui t'ont fait du mal.

**FLORENT,** *calme et lumineux encore*: Non, Thérèse. Mais je ne désespère pas. Je compte bien t'apprendre un jour à ne plus savoir haïr, toi non plus.

**THÉRÈSE**: Comme tu es sûr de toi!

**FLORENT**: Oui, je suis sûr de moi et sûr de ton bonheur que je ferai, que tu le veuilles ou non.

**THÉRÈSE**: Comme tu es fort!

**FLORENT**: Oui, je suis fort.

**THÉRÈSE**: Tu n'as jamais été laid, ni honteux, ni pauvre . . . Moi, j'ai fait de longs détours parce qu'il fallait que je descende des marches et que j'avais des bas troués aux genoux. J'ai fait des commissions pour les autres et j'étais grande et je disais merci et je riais, mais j'avais honte quand on me donnait des sous. Tu n'as jamais été en commission, toi, tu n'as jamais cassé le litre et pas osé remonter dans l'escalier?

**TARDE**: Tu as bien besoin de raconter toutes ces histoires, par exemple! . . .

**THÉRÈSE**: Oui, papa, j'en ai besoin.

**FLORENT**: Je n'ai jamais été pauvre, non, Thérèse, mais ce n'est pas ma faute.

**THÉRÈSE**: Rien n'est ta faute! Tu n'as jamais été malade non plus, j'en suis sûre . . .

*suite p. 11*

**FLORENT** *secoue la tête*: Je me battrai, Thérèse, je me battrai, et je serai plus fort que tout ce que t'a fait la misère.

**THÉRÈSE** *ricane*: Tu te battras! Tu te battras! Tu te bats gaiement contre la souffrance des autres parce que tu ne sais pas qu'elle vous tombe dessus comme un manteau; un manteau qui vous collerait à la peau par endroits. Si tu avais été méchant déjà, ou faible, ou lâche, tu prendrais des précautions infinies pour toucher ce manteau saignant. Il faut faire très attention pour ne pas vexer les pauvres . . . (*Elle prend son père par la main.*) Allons, viens, papa. Remets ton chapeau haut-de-forme. (*À Florent, bien en face.*) Laisse-nous passer, s'il te plaît.

**FLORENT** *lui a barré la route*: Non, Thérèse.

**THÉRÈSE** *frissonne, se regardant dans ses yeux*: "Elle est délicieuse!" J'ai entendu que vous disiez cela avec Hartman. "Elle est délicieuse!" Tu ne t'attendais pas à cela, hein? Cette haine qui me creuse le visage, cette voix qui crie, ces détails crapuleux. Je dois être laide comme la misère en ce moment. Ne dis pas non. Tu es tout pâle. Les vaincus sont effrayants, n'est-ce pas?

**FLORENT**: Pourquoi emploies-tu des mots aussi bêtes? Tu n'es pas un vaincu, et surtout, je ne suis pas un vainqueur.

**THÉRÈSE**: Tu es riche, c'est pire. Un vainqueur qui n'a pas combattu.

**FLORENT** *lui crie, excédé*: Mais tu ne peux pas me reprocher éternellement cet argent. Qu'est-ce que tu veux que j'en fasse?

**THÉRÈSE**: Oh! rien, Florent. Tu aurais beau le jeter tout entier au vent, par la fenêtre, en riant, comme l'autre jour, que ma peine ne s'envolerait pas avec lui . . . Tu n'es pas seulement riche d'argent, comprends-le, tu es riche aussi de ta maison de petit garçon, de ta longue tranquillité et de celle de tes grands-pères . . . Tu es riche de ta joie de vivre qui n'a jamais eu à attaquer ni à se défendre, et puis de ton talent aussi. Tu vois qu'il y a vraiment trop de choses à jeter par la fenêtre . . . Et ne crois pas que tu es un monstre, surtout. Hartman t'a trompé en employant ce mot. Tu m'as torturée et tu es bon, tu sais, et ce n'est pas ta faute, parce que tu ne sais rien. (*Elle le regarde pendant une seconde, puis, soudain, sa colère la submerge. Elle crie, avançant vers lui.*) Tu ne sais rien! Tu comprends, puisque je te lâche mon paquet, aujourd'hui, comme une bonne qu'on flanque à la porte, je veux te le crier une fois encore: c'est ce qui m'a fait le plus de mal. Tu ne sais rien. Vous ne savez rien vous autres, vous avez ce privilège de ne rien savoir. Ah! Je me sens grosse ce soir de toute la peine qui a dû serrer, depuis toujours, le coeur des pauvres quand ils se sont aperçus que les gens heureux ne savaient rien, qu'il n'y avait pas d'espoir qu'un jour ils sachent! Mais ce soir tu sauras, tu me sauras moi au moins, si tu ne sais pas les autres . . .

*Jean Anouilh*
auteur dramatique français (1910-1987)

**VII. "Le Taureau de Daumier" est le texte sur lequel sont basées les questions 61 à 70 aux pages 13 et 14 du livret de questions.**

## LE TAUREAU DE DAUMIER

*Cette histoire se situe au Québec pendant les années 60. Le parler est familier.*

Dans le hameau, celui qui rit, c'est bien Daumier, qu'on dit le plaisant tant il a bonne figure et sourire avenant.

Tant qu'on peut dire de Daumier-le-Plaisant tant qu'on peut dire du Boutillon, mais en contraire.

Daumier qui rit; Boutillon qui bougonne.

Daumier qui est généreux; Boutillon qui est pingre.

Et pour que ce soit pire encore, ils sont voisins.

Or, un midi, arrive Boutillon chez Daumier qui est à dîner.

Daumier a de la bienvenue.

— Tire le banc, assieds-toi. Et si tu viens pour une hargnerie, passe-la. Le temps est au beau, moi aussi, et j'y reste.

— Non, je viens pour ton taureau.

— Mon taureau?

— Oui, celui du grand pâturage.

— Qu'est-ce qu'il a, mon taureau du grand pâturage?

— S'il est à vendre, je te l'achète.

"Allons," se dit Daumier, "te voilà mon Boutillon. T'as l'oeil sur mon taureau. Et c'est tant mieux. Et puisque c'est toi qui veux l'acheter, je te le vends, même s'il est aveugle."

Et sans hésiter, Daumier répond:

— Ça va, je te le vends.

Le fils Daumier qui est là veut bien parler, mais son père ne lui en laisse pas le temps.

— Viens, dehors, que dit Daumier au Boutillon, et discutons voir le prix.

Ainsi il fut que le Boutillon acheta le taureau aveugle de Daumier, sans savoir qu'il était aveugle, et en payant bon prix.

Vingt-trois jours plus tard, et le Boutillon qui arrive chez Daumier.

— Chose bien étrange . . .

. . . qu'il dit . . .

— . . . Mais ton taureau est aveugle.

— Tiens, dit Daumier, c'est une nouvelle. Je ne le savais pas.

— Tu ne le savais pas?

— Je ne le savais pas.

Le Boutillon rougissait.

— C'est bien sûr que tu le savais pas aveugle, ton taureau?

— C'est bien sûr.

— Je fais comme pour lui flanquer une gifle sur l'oeil, et il ne bronche pas, il ne ferme pas l'oeil.

— C'est drôle! Mais c'est peut-être parce qu'il a de la bravoure. Il ne craint pas ta main!

*suite p. 13*

Le Boutillon se fâcha.

— Tu parles en rires, comme toujours. N'empêche qu'il est aveugle ton taureau. Dans le pâturage, il bute.

— Il bute?

— Oui, il bute. Partout. Il va comme ivre, puis il tombe, et se relève. Il ne voit rien, que je te dis!

Daumier se prit un visage ironique.

— Ton pâturage c'est un trou puis une bosse, et le trou creux encore. Toi-même, tu butes dedans. Hier encore, je t'ai vu, une patte au trou, l'autre en l'air, et un grand geste pour faire le cerceau et retomber sur tes pieds. Si tu butes, comment veux-tu que le taureau ne bute pas?

— Le taureau est aveugle, que je te dis!

La seule concession que fit Daumier fut de dire:

— S'il est aveugle, c'est depuis que tu l'as. De mon temps, il voyait clair.

Ce qui acheva de mettre le Boutillon en grande colère et le fit partir en claquant la porte.

Les jours passèrent, et le Boutillon criait par le hameau comment Daumier n'était pas si plaisant qui l'avait ainsi roulé.

À la grande aise du hameau qui trouva bien de voir Boutillon payé de sa monnaie pour une fois.

Un jour Daumier vit Boutillon dans le pâturage avec son taureau. Il se dit que . . .

"Si je l'ai roulé, c'est pas assez d'une fois."

Et il partit vers le bosquet qui borde le pâturage du Boutillon. Dans son champ, le pingre regardait le taureau aveugle et mauvais marcheur.

Et chaque fois qu'il regardait l'animal, la blessure à l'orgueil se rouvrait.

Plus encore depuis le jour où il s'était aperçu qu'en plus d'être aveugle, le taureau n'avait aucun attrait pour les vaches. Et cela, vous comprenez, lui enlevait bien le dernier vestige de valeur qu'il pouvait avoir.

Aujourd'hui, le Boutillon avait le coeur noir. Tant d'argent pour un animal qui n'avait de beau que le corps, mais qui était sans valeur autrement.

Il lui vint à l'idée que le tuer serait bien la meilleure chose. Il supputait même le prix qu'il lui rapporterait. Loin du prix payé, mais tout de même une compensation.

Puis Daumier qui était non loin dans le bosquet s'avisa que le moment était venu et fit la grosse voix en beuglement qui disait:

— Boutillon! Arrête de me calomnier! Je ne suis pas aveugle!

Le Boutillon perdu dans ses pensées sursauta:

— Hein? quoi?

— Je ne suis pas aveugle, Boutillon. Si je bute, c'est que tu me nourris mal, que je suis faible, et que ton pâturage est plein de trous.

Boutillon bondit vers le taureau en criant:

— Il parle! Il parle! Ma fortune est faite.

(Sa fortune! Lui qui a tant de sous!)

Voyez-vous, Daumier a si bien fait le beuglement que Boutillon s'y est laissé prendre.

*suite p. 14*

Et il court au village chercher la meilleure nourriture, et il va la porter au taureau, et il court chez Daumier louer le pâturage d'en haut, qui est plat comme ma main et plein de trèfle et de bonne luzerne.

Ce qui fait bien l'affaire de Daumier puisqu'en plus de se débarrasser du taureau aveugle, il loue le pâturage inoccupé, bon prix.

Même en plus que ce sera une bonne et savoureuse histoire pour raconter à la veillée au hameau.

*Yves Thériault*
écrivain québécois (1915-1983)

# CRÉDITS

Anatole France. "Le Chien et le Maître" extrait de *L'Anneau d'améthyste* (Paris: Calmann-Lévy). Reproduit avec la permission de Calmann-Lévy.

Ian Austen. "Pour quelques barils de plus" dans *L'Actualité* (Montréal). Reproduit avec la permission de L'Actualité.

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Yves Thériault. "Le Secret de Justine" dans *La Femme Anna et autres contes* (VLB Éditions). Reproduit avec la permission de VLB Éditions.

Jean Anouilh. "Les deux 'Royaumes' " extrait de *La Sauvage* © Éditions de La Table Ronde, Paris, 1958. Reproduit avec la permission de La Table Ronde.

Yves Thériault. "Le Taureau de Daumier" dans *Contes pour un homme seul*, Montréal, Éditions Hurtubise HMH, 1965, 2e édition, 1982.

LIVRET DE QUESTIONS

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

## Français 30

Partie B: Compréhension écrite
(choix multiples)

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# FRANÇAIS 30

## Partie B: Compréhension écrite (choix multiples)

## LIVRET DE QUESTIONS

## INSTRUCTIONS GÉNÉRALES

Cet examen de Français 30 comporte 70 questions présentées dans ce livret de questions. Ces questions portent sur les textes dans le livret de textes.

**VÉRIFIEZ QUE VOUS AVEZ BIEN UN LIVRET DE QUESTIONS ET UN LIVRET DE TEXTES.**

**VOUS AVEZ 2 HEURES POUR FAIRE CET EXAMEN.**

VOUS N'ÊTES PAS AUTORISÉS à vous servir de dictionnaire, ou de tout autre ouvrage de référence.

Sur la feuille de réponses fournie, utilisez UNIQUEMENT un crayon HB pour indiquer la BONNE ou la MEILLEURE réponse pour chaque question, comme le montre l'exemple ci-dessous.

| **Exemple** | **Feuille de réponses** |
|---|---|
| Quel mois a 31 jours? | A B C D |
| **A.** Février<br>**B.** Avril<br>**C.** Novembre<br>**D.** Décembre | ① ② ③ ● |

Ne cochez qu'une seule réponse pour chaque question. Si vous changez de réponse, effacez complètement votre première marque. Répondez à toutes les questions.

**JANVIER 1990**

**I. Les questions 1 à 10 portent sur "Le Chien et le Maître" aux pages 1 et 2 du livret de textes.**

1. Quand la servante Angélique, voulant améliorer la vie de son maître, lui donne un chien, elle montre

**A.** sa sagesse
**B.** sa diligence
**C.** son espièglerie
**D.** sa reconnaissance

2. Aux lignes 14 et 15, lorsque l'auteur dit que le chien "embrassa M. Bergeret au cou, et le regarda avec des yeux de crainte et d'amour", son but est de montrer que Riquet

**A.** est incertain donc impulsif
**B.** a des comportements humains
**C.** aime jouer avec son maître
**D.** a peur de son maître

3. Riquet a dû se sentir accepté par son maître lorsque celui-ci

**A.** lui a offert une récompense
**B.** l'a appelé à la rescousse
**C.** lui a fait un sourire
**D.** l'a dévisagé

4. M. Bergeret pense que "le compagnon le plus sûr que l'on puisse avoir" (lignes 32-33) est un chien parce que cet animal a

**A.** un regard compatissant
**B.** une innocence profonde
**C.** du caractère
**D.** de l'humour

5. Après l'incident décrit, M. Bergeret perçoit son chien comme

**A.** une bête naïve
**B.** un être mystérieux
**C.** un témoin importun
**D.** un compagnon fidèle

*suite p. 2*

**6.** Bien que M. Bergeret et Riquet soient d'espèces différentes, quel lien, selon M. Bergeret, unit l'homme au chien?

**A.** Une solidarité fraternelle
**B.** Une admiration mutuelle
**C.** Une confiance absolue
**D.** Une pitié touchante

**7.** M. Bergeret apprend à apprécier la compagnie de son chien SURTOUT parce que Riquet

**A.** interrompt son sommeil pour son maître
**B.** montre de la sympathie pour son maître
**C.** est charitable envers son maître
**D.** court au secours de son maître

**8.** L'auteur soutient notre intérêt grâce à un ton

**A.** sadique
**B.** ironique
**C.** dramatique
**D.** philosophique

**9.** Tout au long de l'extrait, on peut déceler l'intention de l'auteur qui, en montrant les caractéristiques de Riquet, fait ressortir

**A.** l'absence de jugement du chien
**B.** le besoin d'affection de l'animal
**C.** l'amitié inconditionnelle du chien
**D.** l'inégalité entre l'humain et l'animal

**10.** La phrase qui, selon l'auteur, montre LE MIEUX la différence entre l'homme et l'animal est:

**A.** "Ce petit être vivait dans le moment présent, sans souci des temps révolus" (lignes 20-21)

**B.** "Tu n'as pas ri, comme aurait fait à ta place tout jeune individu de mon espèce" (lignes 29-30)

**C.** "Mais par cela même, par ta gravité naïve, tu fais le compagnon le plus sûr que l'on puisse avoir" (lignes 32-33)

**D.** "Quelle charité obscure a jailli pour moi de ta pauvre petite âme?" (lignes 39-40)

**II. Les questions 11 à 19 portent sur "Pour quelques barils de plus" aux pages 3 et 4 du livret de textes.**

**11.** Dans l'introduction, quand Ian Austen dit que la mer de Beaufort est le "théâtre d'une polémique" (ligne 5), il laisse entendre qu'elle est

**A.** le lieu d'une situation controversée
**B.** le site où se joue une pièce dramatique
**C.** l'endroit où se regroupent plusieurs intervenants politiques
**D.** la scène où se déroule la bataille des frontières canadienne et américaine

**12.** Quand Ian Austen dit que "l'administration Reagan jetait de l'huile sur le feu en appuyant sans réserve les compagnies pétrolières" (lignes 6-7), il veut démontrer que l'administration Reagan

**A.** se jette dans la bataille en créant des réserves de pétrole
**B.** menace de détruire la plaine côtière en incendiant ce territoire
**C.** envenime le débat en prenant parti pour l'exploitation pétrolière
**D.** cherche à éliminer toute la production pétrolière afin de régler le conflit

**13.** Selon le ministre Donald Hodel (lignes 8-15), la position du gouvernement américain est basée sur l'assertion qu'il faut penser

**A.** à l'environnement sans attendre les risques de désastre
**B.** aux profits avant de penser aux problèmes écologiques
**C.** à la prospection avant de penser à l'exploitation
**D.** à accroître la production d'énergie

**14.** D'après le texte, le groupe des Verts, ce serait les gens qui

**A.** se préoccupent d'écologie
**B.** siègent au gouvernement canadien
**C.** dirigent les compagnies pétrolières
**D.** font partie de l'administration Reagan

**15.** Dans l'affaire des exploitations pétrolières, le Canada s'oppose farouchement au projet des États-Unis SURTOUT parce que ce projet

**A.** empiéterait sur le territoire canadien
**B.** entraînerait la pollution des eaux environnantes
**C.** pourrait avoir des conséquences graves sur la faune
**D.** diminuerait les ventes de pétrole et de gaz canadiens

*suite p. 4*

16. Selon l'ambassadeur américain au Canada (lignes 32-37), les caribous seraient avantagés par certaines installations pétrolières

- **A.** parce qu'ils seraient moins accessibles aux chasseurs
- **B.** parce que leur race serait davantage protégée
- **C.** parce qu'ils deviendraient sédentaires
- **D.** parce qu'ils trouveraient un refuge

17. Le projet de loi présenté par Donald Hodel ne sera pas accepté si facilement au Congrès (lignes 41-50) parce que le projet est contesté principalement par

- **A.** le gouvernement canadien
- **B.** les Verts des deux pays
- **C.** l'ambassade canadienne
- **D.** les habitants du Yukon

18. Quand Norma Kassi affirme que le mode de vie ancestral des habitants de Old Crow serait bouleversé (lignes 46-50), elle invoque des raisons

- **A.** politiques
- **B.** humanitaires
- **C.** économiques
- **D.** personnelles

19. Selon l'auteur, en détériorant un environnement donné, on influence SURTOUT

- **A.** la migration des caribous
- **B.** la survie du patrimoine
- **C.** l'expansion économique
- **D.** les services sociaux

**III. Les questions 20 à 28 portent sur "Bruno Bettelheim: Pour ne pas 'rater' ses enfants" aux pages 5 et 6 du livret de textes.**

**20.** La solution de Bettelheim au problème des changements causés par l'arrivée des enfants est

**A.** la soumission des enfants aux parents
**B.** d'établir un nouveau mode de vie
**C.** l'imposition du mode de vie par les enfants
**D.** d'empêcher les enfants d'empiéter sur la vie des parents

**21.** Laquelle des affirmations suivantes illustre le mieux la pensée de Bettelheim quant à l'apprentissage de l'enfant?

**A.** L'enfant apprend en s'amusant.
**B.** L'enfant doit être occupé constamment.
**C.** L'enfant apprend par un enseignement systématique.
**D.** L'enfant doit fréquenter l'école le plus tôt possible.

**22.** Qui cela inquiète-t-il de mettre les enfants dans une garderie?

**A.** Les mères
**B.** Les enfants
**C.** Les enseignants
**D.** Les psychologues

**23.** Selon Bettelheim, l'enfant profite plus du temps passé avec ses parents

**A.** si un parent est toujours à la maison
**B.** si ceux-ci aiment être avec leurs enfants
**C.** s'ils font des sorties spéciales ensemble
**D.** si un parent assume la responsabilité de l'éducation de l'enfant

**24.** Quelle idée exprime LE MIEUX l'attitude de Bettelheim vis-à-vis de la télévision (lignes 40-52)?

**A.** Elle distrait l'enfant.
**B.** Elle rend l'enfant antisocial.
**C.** Elle diminue l'initiative de l'enfant.
**D.** Elle renseigne l'enfant sur le monde moderne.

*suite p. 6*

**25.** Afin de mieux élever leurs enfants, Bettelheim suggère aux parents

**A.** de consulter des spécialistes
**B.** d'imiter leurs propres parents
**C.** de s'en tenir aux conseils reçus
**D.** de personnaliser les solutions à appliquer

**26.** Selon l'auteur, le meilleur héritage qu'un enfant peut recevoir de ses parents est

**A.** la confiance en soi par l'exemple
**B.** une éducation privilégiée
**C.** un amour inconditionnel
**D.** la critique constructive

**27.** Selon Bettelheim, il y a une certaine contradiction dans l'amour des parents pour leurs enfants, qui est due à

**A.** l'incertitude d'être aimé en retour
**B.** la conséquence d'un amour mal dirigé
**C.** l'impossibilité de mesurer l'amour
**D.** l'insuffisance de la bonne volonté

**28.** Dans le titre, quand Bettelheim parle de 'rater' ses enfants, il parle

**A.** de la dépersonnalisation des relations entre humains
**B.** de la stigmatisation des enfants en garderie
**C.** de la préoccupation moderne de réussir
**D.** du concept de "dressage" des enfants

**IV. Les questions 29 à 38 portent sur "L'Albatros" à la page 7 du livret de textes.**

**29.** Ce qui exprime LE MIEUX la nonchalance de l'albatros quand il suit les navires est

**A.** "indolents compagnons de voyage" (vers 3)
**B.** "maladroits et honteux" (vers 6)
**C.** "Laissent piteusement leurs grandes ailes blanches" (vers 7)
**D.** "l'infirme qui volait" (vers 12)

**30.** Dans le sens littéral, l'expression "gouffres amers" (vers 4) compare la mer

**A.** aux remous sous-marins
**B.** à des profondeurs cruelles
**C.** aux complications de la vie
**D.** à des expériences inconnues

**31.** Nous savons que le poète trouve que les albatros en vol sont des "rois de l'azur" (vers 6) parce qu'il écrit

**A.** "vastes oiseaux des mers" (vers 2)
**B.** "Qui suivent, indolents compagnons de voyage" (vers 3)
**C.** "leurs grandes ailes blanches / Comme des avirons" (vers 7-8)
**D.** "Lui, naguère si beau" (vers 10)

**32.** Sur le navire, l'albatros est "gauche et veule" (vers 9) parce que

**A.** ses ailes sont maintenant un fardeau
**B.** son corps s'est affaibli
**C.** ses ailes sont brisées
**D.** son corps est trempé

**33.** Aux vers 11 et 12, "L'un agace son bec avec un brûle-gueule, / L'autre mime, en boitant, l'infirme qui volait", le poète veut parler

**A.** des soucis des humains
**B.** des moqueries des marins
**C.** de l'infirmité de l'albatros
**D.** de la cruauté humaine envers les poètes

*suite p. 8*

**34.** La maladresse de l'albatros sur le navire vient du fait qu'il

**A.** est trop gros
**B.** traîne les pattes
**C.** glisse sur la mer
**D.** est hors de son élément

**35.** Les ailes de l'albatros sont comparées à des

**A.** poètes exilés
**B.** géants maladroits
**C.** rames qui traînent dans l'eau
**D.** bateaux qui glissent entre les vagues

**36.** Les vers 13 et 14, "Le Poète est semblable au prince des nuées / Qui hante la tempête et se rit de l'archer", impliquent que le poète

**A.** s'éloigne du danger
**B.** brave son milieu
**C.** se moque des autres
**D.** est obsédé par son entourage

**37.** Par le dernier vers, le poète veut nous dire que

**A.** trop de pouvoir nous emprisonne
**B.** le milieu influence notre comportement
**C.** chacun peut s'adapter à un nouveau milieu
**D.** chacun s'épanouit mieux dans son propre milieu

**38.** Dans ce poème, le poète et l'albatros se ressemblent du fait qu'ils

**A.** se voient tous les deux en danger
**B.** doivent se défendre tous les deux
**C.** sont prisonniers dans un milieu étrange
**D.** manquent de confiance dans leur entourage

**V. Les questions 39 à 49 portent sur "Le Secret de Justine" aux pages 8 et 9 du livret de textes.**

**39.** Les lignes 6 à 14 mettent en relief que Varan apprécie

**A.** le bonheur et l'effort
**B.** le partage et l'autorité
**C.** le travail et la routine
**D.** l'indépendance et le succès

**40.** Les paroles de Varan "À chacun son effort . . . et nous vivrons" (ligne 15) expriment une vision

**A.** qui se limite à la survie
**B.** que Justine adopte d'emblée
**C.** que l'auteur juge sévèrement
**D.** qui favorise l'épanouissement

**41.** L'expression "mangeait lourd" à la ligne 21 veut dire

**A.** que Varan est gros et grand
**B.** que le régime de Varan est gras
**C.** que Varan a des manières grossières
**D.** que les besoins de Varan sont simples

**42.** Les lignes 20 à 25 par rapport aux lignes 26 à 31 indiquent un contraste entre

**A.** l'affectif et le matériel
**B.** les apparences et la réalité
**C.** ce que Varan dit et ce qu'il fait
**D.** les attitudes de Varan et celles de Justine

**43.** Aux lignes 32 à 34, l'auteur suggère que Justine perd peu à peu

**A.** son entrain
**B.** sa compassion
**C.** son exubérance
**D.** son insouciance

*suite p. 10*

**44.** Quand l'auteur dit de Justine: "Il lui vint le silence, état peu connu de ses pareilles des hameaux de la plaine" (lignes 33-34), il veut dire que

**A.** Justine ne se rendait que rarement au village
**B.** Varan ne remarquait pas le changement chez Justine
**C.** Justine ne s'exprimait plus comme les autres jeunes femmes
**D.** Varan ne discutait pas des choses journalières avec Justine

**45.** La vie commune avec Varan a appris à Justine à

**A.** apprécier la valeur de Varan
**B.** étouffer ses propres sentiments
**C.** découvrir les beautés d'une ferme
**D.** apprécier le temps de sa jeunesse

**46.** Justine finit par admirer le silence de Varan SURTOUT parce que

**A.** le style de vie de Varan est utilitaire
**B.** le bon caractère de Varan lui suffit
**C.** l'honnêteté de Varan l'impressionne
**D.** la simplicité de Varan l'inspire

**47.** Dans le texte, lignes 47 à 51, l'auteur veut nous montrer que, pour Justine, le temps passé avec Varan

**A.** ravive des souvenirs
**B.** est souvent interminable
**C.** cause une certaine anxiété
**D.** change sa conception des choses

**48.** Le secret de Justine est "lourd" (ligne 54) parce qu'elle

**A.** a honte de ses sentiments
**B.** ne désire pas changer Varan
**C.** a peur de la réaction de son mari
**D.** ne sait pas comment le dire à Varan

**49.** Dans ce texte, la grande valeur qu'Yves Thériault a voulu faire ressortir est SURTOUT

**A.** l'importance du travail commun
**B.** la nécessité du sacrifice
**C.** la valeur du silence
**D.** l'acceptation mutuelle

**VI. Les questions 50 à 60 portent sur "Les deux 'Royaumes' " aux pages 10 et 11 du livret de textes.**

**50.** Le "royaume" de Thérèse est celui de

**A.** l'infériorité
**B.** la misère
**C.** la haine
**D.** l'envie

**51.** Ce qui montre que Thérèse considère cette rencontre avec Florent comme la dernière, c'est qu'elle

**A.** est pleine d'amertume
**B.** semble d'une grande tristesse
**C.** lui demande de la laisser passer
**D.** lui dit tout ce qu'elle a sur le coeur

**52.** Thérèse n'accepte pas la nouvelle vie que lui offre Florent

**A.** parce qu'elle se sent responsable de son père
**B.** parce qu'elle ne peut renier ses origines
**C.** parce que Florent refuse de la comprendre
**D.** parce que Florent veut la changer

**53.** Les paroles de Florent "tu ne m'as pas échappé" (ligne 5), "je suis sûr de moi" (ligne 17) et "je suis fort" (ligne 20) accentuent

**A.** l'attitude possessive de Florent
**B.** l'appui absolu de Florent
**C.** l'arrogance de Florent
**D.** la richesse de Florent

**54.** Les paroles qui montrent LE MIEUX que Florent est certain qu'il réussira à rendre Thérèse heureuse sont

**A.** "Oui, je suis sûr de moi et sûr de ton bonheur que je ferai, que tu le veuilles ou non." (lignes 17-18)
**B.** "Je n'ai jamais été pauvre, non, Thérèse, mais ce n'est pas ma faute." (ligne 29)
**C.** "Je me battrai, Thérèse, je me battrai, et je serai plus fort que tout ce que t'a fait la misère." (lignes 32-33)
**D.** "Mais tu ne peux pas me reprocher éternellement cet argent." (lignes 52-53)

*suite p. 12*

**55.** Aux lignes 38 et 39, "Il faut faire très attention pour ne pas vexer les pauvres", le sentiment chez les pauvres que ces paroles expriment est

**A.** la jalousie
**B.** l'impatience
**C.** l'ingratitude
**D.** la susceptibilité

**56.** À la ligne 49, Florent dit que les mots utilisés par Thérèse sont "bêtes". En fait, ce qu'il veut dire, c'est que ces mots

**A.** ne sont pas dignes d'elle
**B.** ne sont pas intelligents
**C.** lui semblent exagérés
**D.** lui semblent agressifs

**57.** Selon Thérèse, Florent est "Un vainqueur qui n'a pas combattu" (ligne 51). Quel commentaire de Florent vient à l'appui de ce jugement?

**A.** "tu ne m'as pas échappé" (ligne 5)
**B.** "je ne désespère pas" (ligne 14)
**C.** "je suis fort" (ligne 20)
**D.** "ce n'est pas ma faute" (ligne 29)

**58.** Thérèse se rend compte que ses paroles vives (lignes 30-48) ont touché Florent quand il

**A.** ne la laisse pas partir
**B.** secoue la tête
**C.** est excédé
**D.** pâlit

**59.** D'après Thérèse, Florent n'est pas un monstre (lignes 60-71) parce qu'il est

**A.** compatissant
**B.** ignorant
**C.** généreux
**D.** calme

**60.** L'aspect LE PLUS tragique du conflit entre Thérèse et Florent, c'est

**A.** que la formation de Thérèse est différente de celle de Florent
**B.** que Thérèse croit que Florent manque de sincérité
**C.** qu'ils ont de grandes différences de tempérament
**D.** que leurs mondes semblent irréconciliables

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**VII. Les questions 61 à 70 portent sur "Le Taureau de Daumier" aux pages 12 à 14 du livret de textes.**

**61.** La phrase "Le temps est au beau, moi aussi, et j'y reste" (lignes 10-11) nous laisse entendre que

**A.** Daumier ne veut pas sortir
**B.** Daumier veut garder sa bonne humeur
**C.** les voisins se chamaillent souvent
**D.** les voisins discutent la météo

**62.** Le fils Daumier voudrait bien ajouter un mot (ligne 22) parce qu'il veut

**A.** garder son taureau
**B.** se débarrasser du taureau
**C.** aider son père à marchander
**D.** dire que le taureau a un défaut physique

**63.** Après avoir affirmé que le taureau est aveugle (lignes 52-56), Boutillon exprime sa fureur en

**A.** refusant d'écouter Daumier
**B.** fermant violemment l'huis
**C.** criant des injures
**D.** insultant Daumier

**64.** Quand Boutillon crie dans tout le hameau que Daumier l'a roulé (lignes 57-58), il veut dire que Daumier

**A.** l'a battu
**B.** est avare
**C.** l'a trompé
**D.** est orgueilleux

**65.** Yves Thériault utilise des guillemets (lignes 17 à 19 et ligne 63) pour rapporter

**A.** les pensées de Boutillon
**B.** les pensées de Daumier
**C.** une citation
**D.** un dialogue

*suite p. 14*

**66.** Boutillon est tellement déçu de son taureau qu'il veut

- **A.** le priver de nourriture
- **B.** le vendre au marché
- **C.** l'abattre
- **D.** l'injurier

**67.** L'expression qui exprime l'importance de l'argent pour Boutillon est

- **A.** "S'il est à vendre, je te l'achète." (ligne 16)
- **B.** "Si je l'ai roulé, c'est pas assez d'une fois." (ligne 63)
- **C.** "Il parle! Il parle! Ma fortune est faite." (ligne 83)
- **D.** "il court chez Daumier louer le pâturage d'en haut. . . ." (ligne 88)

**68.** Face à la situation dans laquelle s'est trouvé Boutillon, les gens de son hameau

- **A.** sympathisent avec lui
- **B.** accusent Daumier
- **C.** sont indifférents
- **D.** se réjouissent

**69.** Un trait caractéristique du personnage de Boutillon est

- **A.** l'innocence
- **B.** la rancune
- **C.** l'avarice
- **D.** la colère

**70.** La morale de cette histoire serait:

- **A.** Rira bien qui rira le dernier.
- **B.** À tout seigneur, tout honneur.
- **C.** Tel est pris qui croyait prendre.
- **D.** À coeur vaillant rien d'impossible.

FORTIS
ET
LIBER

# GRADE 12
# DIPLOMA EXAMINATION

## Mathematics 30

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# MATHEMATICS 30

## DESCRIPTION

Time: 2½ hours

Total possible marks: 65

This is a **closed-book** examination consisting of **three** parts:

PART A has 40 multiple-choice questions each with a value of one mark.

PART B has 12 machine-scorable open-ended questions each with a value of one mark.

PART C has three written-response questions for a total of 13 marks.

A tear-out formula and z-score page is included in this booklet.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

## GENERAL INSTRUCTIONS

Fill in the information required on the answer sheet and the examination booklet as directed by the examiner.

You are expected to provide your own approved scientific calculator.

Carefully read the instructions for each part before proceeding.

**DO NOT FOLD EITHER THE ANSWER SHEET OR THE EXAMINATION BOOKLET.**

The presiding examiner will collect your answer sheet and examination booklet and send them to Alberta Education.

**JANUARY 1990**

# PART A

## INSTRUCTIONS

In this part of the examination, there are 40 multiple-choice questions each with a value of one mark. All numbers used in the questions are to be considered as **exact** numbers and are not the result of a measurement.

Read each question carefully and decide which of the choices **best** completes the statement or answers the question. Locate that question number on the separate answer sheet provided and fill in the space that corresponds to your choice. **Use an HB pencil only.**

**Example**

This diploma examination is for the subject area of

**A.** Biology
**B.** Physics
**C.** Chemistry
**D.** Mathematics

**Answer Sheet**

| A | B | C | D |
|---|---|---|---|
| ① | ② | ③ | ● |

If you wish to change an answer, erase your first mark completely.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

**DO NOT TURN THE PAGE TO START THE EXAMINATION UNTIL TOLD TO DO SO BY THE PRESIDING EXAMINER.**

1. In $\Delta ABC$, $\angle B = 118°$, $b = 32.6$ cm, and $a = 16.3$ cm. The measure of $\angle C$ correct to the nearest tenth of a degree is

   **A.** 63.8°

   **B.** 54.2°

   **C.** 35.8°

   **D.** 26.2°

2. An angle of 340° expressed in radians is

   **A.** $\frac{9\pi}{17}$ rad

   **B.** $\frac{17\pi}{9}$ rad

   **C.** $\frac{9}{17\pi}$ rad

   **D.** $\frac{17}{9\pi}$ rad

3. If $\tan\theta = 0.6$, then $\sec^2\theta$ is

   **A.** 1.60
   **B.** 1.36
   **C.** 1.17
   **D.** 0.64

4. If $2\sin\theta + 1 = 0$, $0 \leqq \theta < 2\pi$, then $\theta$ is equal to

   **A.** $\frac{\pi}{6}, \frac{5\pi}{6}$

   **B.** $\frac{\pi}{6}, \frac{11\pi}{6}$

   **C.** $\frac{5\pi}{6}, \frac{7\pi}{6}$

   **D.** $\frac{7\pi}{6}, \frac{11\pi}{6}$

5. If $\sin\theta = \frac{a}{b}$ and $\cos\theta = \frac{c}{d}$, then $\tan\theta$ is

**A.** $\frac{ac}{bd}$

**B.** $\frac{ad}{bc}$

**C.** $\frac{bc}{ad}$

**D.** $\frac{bd}{ac}$

6. In $\Delta PQR$, $PQ = 17$ cm, $QR = 80$ cm, and $PR = 73$ cm. The measure of $\angle PQR$ correct to the nearest degree is

**A.** 48°

**B.** 50°

**C.** 60°

**D.** 68°

7. An angle $\theta$ is in standard position. A circle centred on the origin intersects the arms of the angle at a point on the $x$-axis and at a point $P(a, b)$. The value of $\sec\theta$ is given by

**A.** $\frac{\sqrt{a^2 + b^2}}{a}$

**B.** $\frac{\sqrt{a^2 + b^2}}{b}$

**C.** $\frac{a}{b}$

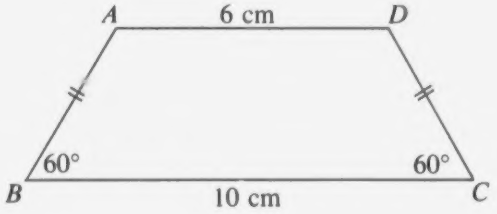
**D.** $\frac{b}{a}$

**8.** A ladder 300 cm long makes an angle of 60° with the ground, when leaning against a vertical wall. Correct to the nearest centimetre, how much closer to the wall will the foot of the ladder be if the angle with the ground is increased to 65°?

- **A.** 127 cm
- **B.** 120 cm
- **C.** 30 cm
- **D.** 23 cm

**9.** The perimeter of trapezoid $ABCD$ shown at the right is

- **A.** 20 cm
- **B.** 22 cm
- **C.** 24 cm
- **D.** 32 cm



**10.** The point $P(6, 8)$ is on the circle $(x - 2)^2 + (y - 6)^2 = 20$, and $PQ$ is a diameter of this circle. The co-ordinates of $Q$ are

- **A.** $x = 4;\ y = 7$
- **B.** $x = 4;\ y = 4$
- **C.** $x = -2;\ y = 7$
- **D.** $x = -2;\ y = 4$

**11.** An equation of an ellipse with vertices at $(0, \pm 4)$ and foci at $(0, \pm 2)$ is

- **A.** $\frac{x^2}{16} + \frac{y^2}{12} = 1$
- **B.** $\frac{x^2}{16} + \frac{y^2}{20} = 1$
- **C.** $\frac{x^2}{12} + \frac{y^2}{16} = 1$
- **D.** $\frac{x^2}{4} + \frac{y^2}{16} = 1$

**12.** A parabola is the set of points that are equidistant from a fixed line and a fixed point not on the line. The fixed line is called the

- **A.** directrix
- **B.** asymptote
- **C.** focal radius
- **D.** axis of symmetry

**13.** For the ellipse $5x^2 + 9y^2 - 180 = 0$, one focus is at

**A.** $(0, 4)$

**B.** $(4, 0)$

**C.** $(0, 2\sqrt{14})$

**D.** $(2\sqrt{14}, 0)$

**14.** The length of the major axis of the ellipse $4x^2 + 9y^2 = 1$ is

**A.** $\frac{2}{3}$

**B.** 1

**C.** 4

**D.** 6

**15.** A conic has foci at $(\pm 5, 0)$ and the difference of its focal radii is always 8. An equation of the conic is

**A.** $9x^2 + 16y^2 = 144$

**B.** $9x^2 - 16y^2 = 144$

**C.** $16x^2 - 9y^2 = 144$

**D.** $16x^2 + 9y^2 = 144$

**16.** An elliptical rug is placed in a rectangular room with dimensions 4.0 m by 3.2 m. If the rug touches the midpoint of each wall, the distance between the centre of the room and one focus of the rug is

**A.** 2.6 m
**B.** 2.4 m
**C.** 1.2 m
**D.** 0.8 m

**17.** For the parabola $(x - 1)^2 = 4(y - 2)$, the directrix is

**A.** $y = 1$
**B.** $y = -3$
**C.** $x = 0$
**D.** $x = -2$

**18.** A circle with a radius of 4 units is centred at (3, −5). An equation of the circle is

**A.** $x^2 - 6x + y^2 + 10y + 18 = 0$

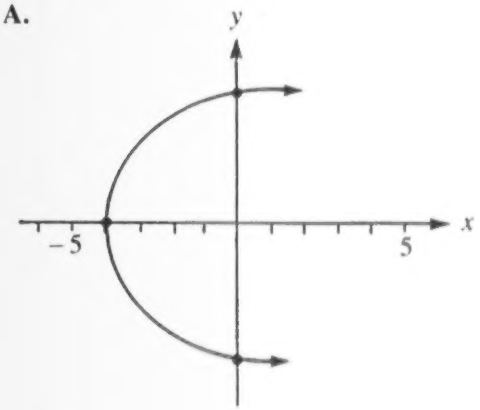
**B.** $x^2 + 6x + y^2 - 10y + 18 = 0$

**C.** $x^2 - 6x + y^2 + 10y + 30 = 0$

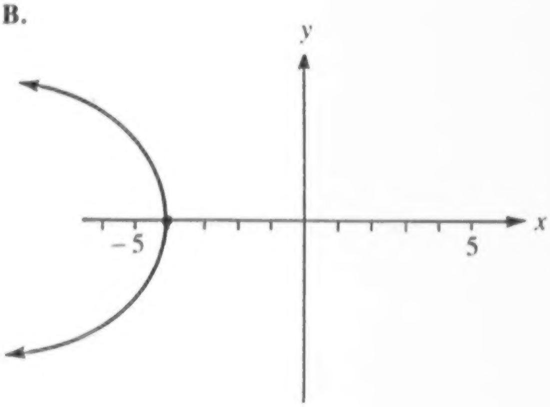
**D.** $x^2 + 6x + y^2 - 10y + 30 = 0$

**19.** A parabola has its focus at (−4, 0) and its directrix is $x = 2$. The graph of this parabola is

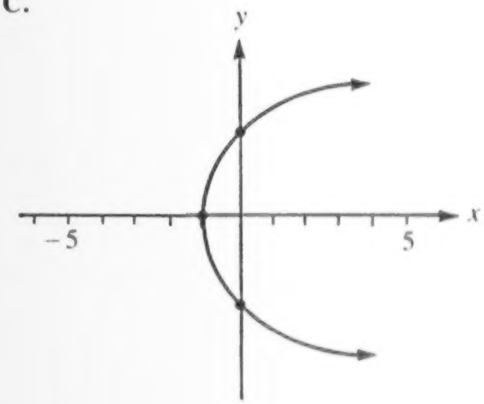
**A.**



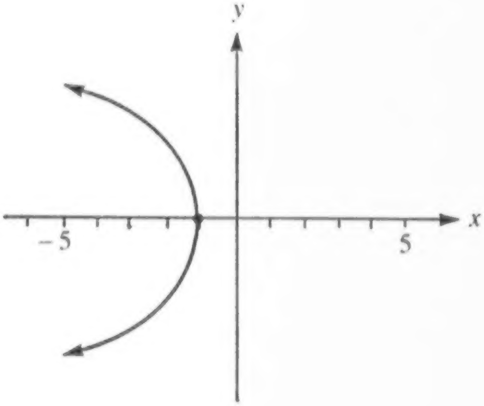
**B.**



**C.**



**D.**



**20.** A point $P(16, y)$ is on an asymptote of the hyperbola $\frac{x^2}{16} - \frac{y^2}{49} = 1$. The value of $y$ is

**A.** $\pm 7$

**B.** $\pm \frac{64}{7}$

**C.** $\pm 28$

**D.** $\pm 49$

**21.** If the first term of an arithmetic sequence is $5x$ and the common difference is $2x$, an expression for the general term, $t_n$, is

**A.** $\frac{7nx}{2}$

**B.** $3x + 2nx$

**C.** $5nx - 3x$

**D.** $(5x)(2x)^{n-1}$

**22.** The sum of the series described by $\sum_{n=40}^{55} (2n - 20)$ is

**A.** 4125
**B.** 1980
**C.** 1200
**D.** 1125

**23.** A photo-reducing machine is set to produce copies that are $k$ times the height of the original ($k < 1$). Each time that a copy is produced, it is used as a new original to produce an even smaller copy. After **many** reductions, it is noted that the sum of the heights of an 8 cm original and **all** of its images is approaching 36 cm. The value of $k$ correct to two decimal places is

**A.** 0.78
**B.** 0.67
**C.** 0.33
**D.** 0.22

**24.** The common ratio of the geometric sequence $-\frac{1}{6}, \frac{1}{3}, -\frac{2}{3}, \cdot\cdot\cdot$ is

**A.** 2

**B.** $\frac{1}{2}$

**C.** $-\frac{1}{2}$

**D.** $-2$

**25.** The $\lim_{n\to\infty}\left(\frac{2}{3}\right)^n$ is

**A.** 0
**B.** 1
**C.** $\infty$
**D.** nonexistent

**26.** The sum of $n$ terms of an arithmetic series is 397.5. If the first and last terms of the series are 4 and 49 respectively, the number of terms in the series is

**A.** 8
**B.** 9
**C.** 14
**D.** 15

**27.** If $x - 2,\ 2x,\ y,\ \ldots$ is a geometric sequence with a common ratio of 3, then $y$ equals

**A.** 36
**B.** 18
**C.** 12
**D.** 6

**28.** The scores $A$, $B$, $C$, $D$, $E$, $F$, and $G$ are listed in order of magnitude with $A$ being the smallest. If $A$ is decreased slightly and $G$ increased by a large amount, then

**A.** the mean and median both increase
**B.** the mean and median both decrease
**C.** the mean is unchanged but the median increases
**D.** the mean increases but the median is unchanged

**29.** For a normal distribution with a mean of 30 and a standard deviation of 5, the probability of getting a value less than 20 or greater than 35 is

**A.** 0.8185
**B.** 0.4772
**C.** 0.3413
**D.** 0.1815

**30.** The results of a test are normally distributed with a standard deviation of 5. If 75.8% of the marks are less than 71, then the probability that a score selected at random is less than 61 is

**A.** 0.0228
**B.** 0.0968
**C.** 0.1210
**D.** 0.1290

**31.** Ken's collection of baseball cards consists of four cards from the Toronto Blue Jays, six cards from the Montreal Expos, and five cards from the New York Yankees. Of these, two cards feature a pitcher from Toronto, one card a pitcher from Montreal, and three cards a pitcher from New York. If one card is drawn randomly from the collection, the probability that it will feature a pitcher from a Canadian-based team is

**A.** $\frac{1}{5}$

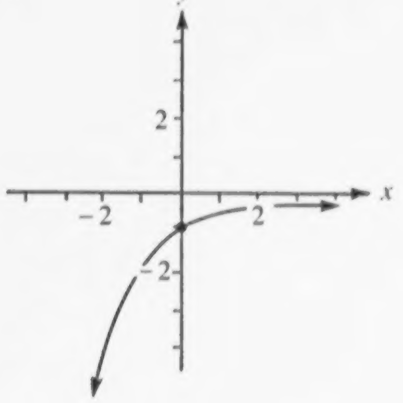
**B.** $\frac{3}{10}$

**C.** $\frac{3}{5}$

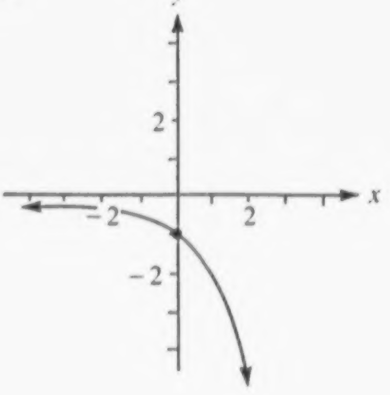
**D.** $\frac{2}{3}$

**32.** The sketch that best represents the graph of $y = \left(\frac{1}{2}\right)^x$ is

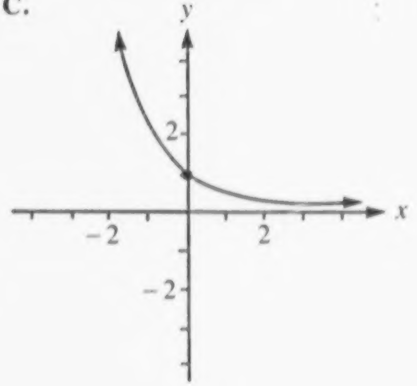
**A.**



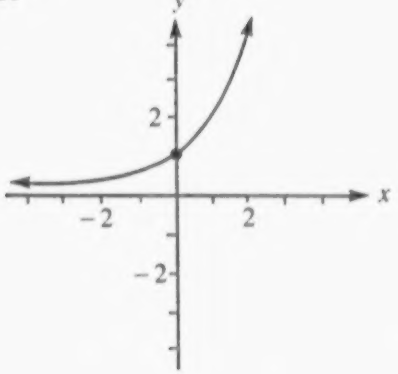
**B.**



**C.**



**D.**



**33.** The solution to the equation $4^{2+3x} = 8^{1+x}$ is

**A.** 0

**B.** $-\frac{1}{3}$

**C.** $-\frac{1}{2}$

**D.** $-\frac{3}{5}$

34. If $3^x = 4$, then $\log_3(16)$ in terms of $x$ is

**A.** $12^x$

**B.** $3^{4x}$

**C.** $x^4$

**D.** $2x$

35. In the equation $\log_x(4) = \frac{1}{3}$, the value of $x$ is

**A.** 64

**B.** 12

**C.** $\frac{4}{3}$

**D.** $\frac{1}{16}$

36. Three first degree factors of $4x^3 + 16x^2 + 9x - 9$ are

**A.** $x + 1$, $2x + 9$, and $2x - 1$

**B.** $x + 3$, $2x - 3$, and $2x + 1$

**C.** $x + 3$, $2x + 3$, and $2x - 1$

**D.** $x - 9$, $2x + 1$, and $2x + 1$

**Use the following information to answer question 37.**

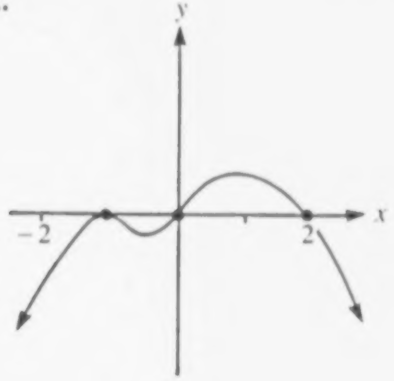
I. $x^3 + x^2 - 4x - 4$
II. $-x^3 - x^2 + 4x + 4$
III. $2x^3 + 2x^2 - 8x - 8$
IV. $3x^3 + 3x^2 - 12x - 12$

**37.** Which of the given polynomials will have the same zeros?

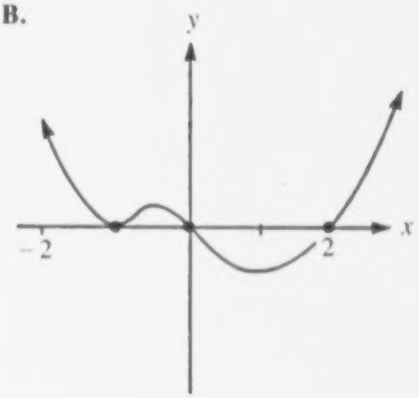
- **A.** All of them
- **B.** None of them
- **C.** Only I and II
- **D.** Only I, III, and IV

**38.** The graph of $y = -2x(x - 1)^2(x + 2)$ is

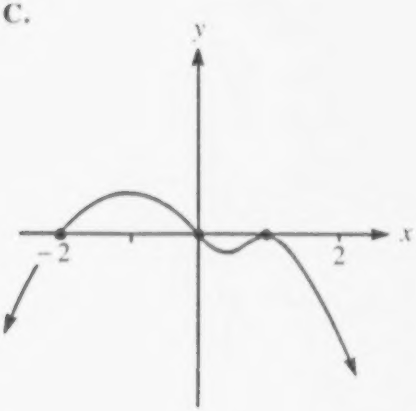
**A.**



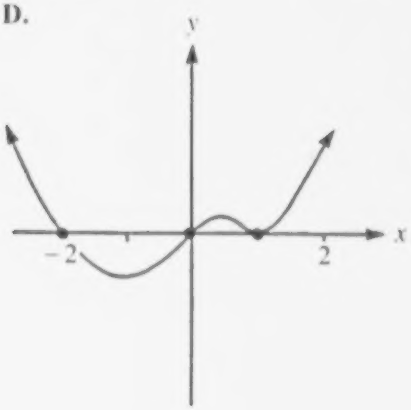
**B.**



**C.**



**D.**



**39.** If $x^3 - 2x^2 + 2x + k$ is divided by $x - 1$, the remainder is

**A.** $k$
**B.** $k + 1$
**C.** $k - 1$
**D.** $1 - k$

**40.** For the graph of $y = 3x^3 - 2x^2 - 7x - 2$, two of the $x$-intercepts are $-1$ and 2. The third $x$-intercept for this graph is

**A.** $\frac{5}{3}$

**B.** $\frac{2}{3}$

**C.** $\frac{1}{3}$

**D.** $-\frac{1}{3}$

**YOU HAVE NOW COMPLETED THE MULTIPLE-CHOICE PART OF THE EXAMINATION. PROCEED DIRECTLY TO PART B.**

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# PART B

## INSTRUCTIONS

In this part of the examination, there are 12 machine-scorable open-ended questions each with a value of one mark. All numbers used in the questions are to be considered as **exact** numbers and are not the result of a measurement.

Read each question carefully.

Solve each question and write your answer correct to the nearest tenth.

Record your answer on the answer sheet provided by writing it in the boxes of the corresponding answer field and by filling in one circle in **every** column as illustrated. **Use an HB pencil only**.

**Sample Questions and Solutions**

1. If $\theta$ is acute and $\sin\theta = 0.6735$, then the measure of $\theta$ correct to the nearest tenth of a degree is ______________ .

   $\theta = 42.33777464...^\circ$

   RECORD 042.3

2. For the arithmetic series $-8 + (-5) + (-2) + \ldots + (85)$, the number of terms correct to the nearest tenth is ______________ .

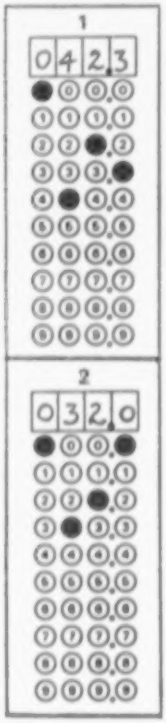
   $85 = -8 + (n-1)(3)$

   $93 = 3n - 3$

   $n = 32$

   RECORD 032.0

**Answer Sheet**

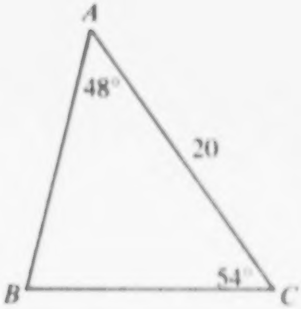


If you wish to change an answer, erase your first mark completely.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

**START PART B IMMEDIATELY.**

1. In the diagram at the right, the measure of $BC$ correct to the nearest tenth is ________.



2. If the solutions to $A\sin^2\theta - B\sin\theta + 1 = 0$, $0° < \theta \leqq 90°$ are 30° and 90°, then the value of $B$ correct to the nearest tenth is ________.

3. For the hyperbola $\frac{y^2}{16} - \frac{x^2}{36} = 1$, the distance from the origin to a focus correct to the nearest tenth is ________.

4. A circle passing through $A(5, -3)$ has its centre at $C(-2, 6)$. The length of the radius of this circle correct to the nearest tenth is ________.

5. If $P(1, 10)$ is a point on an ellipse with foci $F_1(6, -2)$ and $F_2(-7, 4)$, then the distance between the vertices correct to the nearest tenth is ________.

6. For the geometric series $81 + 27 + 9 + \ldots,$ the sum correct to the nearest tenth is ________.

7. If the $n$th term of an arithmetic series is $4n - 5$, then the sum of the first 12 terms correct to the nearest tenth is ________.

8. The mean of a test is 65. If your $z$-score on this test is $-1.6$ and your actual score is 52, then the standard deviation for the test correct to the nearest tenth is ________.

**9.** If $4^{2x} = 90$, then the value of $x$ correct to the nearest tenth is ________.

**10.** If $\log_{64}(x) = -\frac{1}{6}$, then the value of $x$ correct to the nearest tenth is ________.

**11.** If $x - c$ is a factor of $6x^3 + 3cx^2 - c^2x - 27$, then the value of $c$ correct to the nearest tenth is ________.

**12.** If $3x^3 - 25$ is divided by $x - 5$, the remainder correct to the nearest tenth is ________.

**YOU HAVE NOW COMPLETED THE MACHINE-SCORABLE OPEN-ENDED PART OF THE EXAMINATION. PROCEED DIRECTLY TO PART C.**

# PART C

## INSTRUCTIONS

In this part of the examination, there are three written-response questions for a total of 13 marks. All numbers used in the questions are to be considered as **exact** numbers and are not the result of a measurement.

Write your solutions in the examination booklet as neatly as possible.

Your solutions **must show all** pertinent explanations, calculations, and formulas. Full marks will be assigned **only** to those solutions that show **all** pertinent explanations, calculations, and formulas.

> NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

**START PART C IMMEDIATELY.**

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**(4 marks)**

1. A manufacturer of tennis balls tests his product by dropping the balls from a fixed height and measuring the height of the bounce. When 5000 balls were tested, the heights of the bounces were normally distributed with a mean of 60 cm and a standard deviation of 4 cm.

   **a)** How many of the balls bounced less than 63 cm?

   The number of balls was ____________

   **b)** Balls that did not reach a height of 55 cm were rejected. Correct to two decimal places, what percentage of the tested balls was rejected?

   The percentage rejected was ____________

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**(5 marks)**

**2.** Two straight roads cross at an angle of 49°. A car is parked on one of these roads 67 m from the intersection, and a truck is parked on the other road 152 m from the intersection.

**a)** Draw a diagram that shows the positions of the vehicles and all given lengths and angles.

**b)** Find the **minimum** possible value for the distance between the car and the truck correct to the nearest tenth of a metre.

The minimum distance is ________ m

**c)** Find the **maximun** possible value for the distance between the car and the truck correct to the nearest tenth of a metre.

The maximum distance is ________ m

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**(4 marks)**

3. Joyce is saving for a car by depositing $150 monthly into a savings plan that pays interest at the rate of 9% per annum compounded monthly. She makes the deposit at the end of each month. Find the accumulated amount immediately following the 5th year correct to the nearest dollar.

The accumulated amount is ____________________

**YOU HAVE NOW COMPLETED THE EXAMINATION. IF YOU HAVE TIME, YOU MAY WISH TO GO BACK AND CHECK YOUR ANSWERS.**

# MATHEMATICS 30
# FORMULA SHEET

FOLD AND TEAR ALONG PERFORATION

## I. Trigonometry

1. $\pi = 3.14159$
2. $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$
3. $a^2 = b^2 + c^2 - 2bc \cos A$
4. $\sin^2 A + \cos^2 A = 1$
5. $1 + \tan^2 A = \sec^2 A$
6. $1 + \cot^2 A = \csc^2 A$
7. $\sin\left(\dfrac{\pi}{2} - \theta\right) = \cos\theta$
8. $\cos\left(\dfrac{\pi}{2} - \theta\right) = \sin\theta$
9. $\sin(A + B) = \sin A \cos B + \cos A \sin B$
10. $\sin(A - B) = \sin A \cos B - \cos A \sin B$
11. $\cos(A + B) = \cos A \cos B - \sin A \sin B$
12. $\cos(A - B) = \cos A \cos B + \sin A \sin B$
13. $\sin(-\theta) = -\sin\theta$
14. $\cos(-\theta) = \cos\theta$
15. $\tan(-\theta) = -\tan\theta$

## II. Quadratic Relations

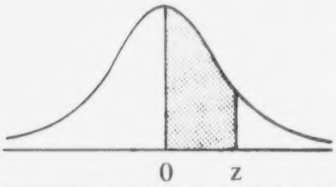
1. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
2. $d = \dfrac{|Ax_1 + By_1 + C|}{\sqrt{A^2 + B^2}}$
3. $M\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right)$
4. $(x - h)^2 + (y - k)^2 = r^2$
5. $x^2 + y^2 + Dx + Ey + F = 0$
6. $(y - k)^2 = 4p(x - h)$
7. $(x - h)^2 = 4p(y - k)$
8. $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1,\ a^2 = b^2 + c^2$
9. $\dfrac{y^2}{a^2} + \dfrac{x^2}{b^2} = 1,\ a^2 = b^2 + c^2$
10. $\dfrac{x^2}{a^2} - \dfrac{y^2}{b^2} = 1,\ c^2 = a^2 + b^2$
11. $\dfrac{y^2}{a^2} - \dfrac{x^2}{b^2} = 1,\ c^2 = a^2 + b^2$

## III. Sequences, Series, and Limits

1. $t_n = a + (n - 1)d$
2. $S_n = \dfrac{n(a + t_n)}{2}$
3. $S_n = \dfrac{n[2a + (n - 1)d]}{2}$
4. $A = P(1 + i)^n$
5. $t_n = ar^{n-1}$
6. $S_n = \dfrac{a(r^n - 1)}{r - 1}$
7. $S_n = \dfrac{rt_n - a}{r - 1}$
8. $S = \dfrac{a}{1 - r},\ -1 < r < 1$

## IV. Statistics

1. $\mu = \dfrac{x_1 + x_2 + \ldots + x_n}{n}$
2. $\sigma = \sqrt{\dfrac{(x_1 - \mu)^2 + \ldots + (x_n - \mu)^2}{n}}$
3. $z = \dfrac{x - \mu}{\sigma}$



## AREAS UNDER THE STANDARD NORMAL CURVE

| z | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0000 | 0.0040 | 0.0080 | 0.0120 | 0.0160 | 0.0199 | 0.0239 | 0.0279 | 0.0319 | 0.0359 |
| 0.1 | 0.0398 | 0.0438 | 0.0478 | 0.0517 | 0.0557 | 0.0596 | 0.0636 | 0.0675 | 0.0714 | 0.0754 |
| 0.2 | 0.0793 | 0.0832 | 0.0871 | 0.0910 | 0.0948 | 0.0987 | 0.1026 | 0.1064 | 0.1103 | 0.1141 |
| 0.3 | 0.1179 | 0.1217 | 0.1255 | 0.1293 | 0.1331 | 0.1368 | 0.1406 | 0.1443 | 0.1480 | 0.1517 |
| 0.4 | 0.1554 | 0.1591 | 0.1628 | 0.1664 | 0.1700 | 0.1736 | 0.1772 | 0.1808 | 0.1844 | 0.1879 |
| 0.5 | 0.1915 | 0.1950 | 0.1985 | 0.2019 | 0.2054 | 0.2088 | 0.2123 | 0.2157 | 0.2190 | 0.2224 |
| 0.6 | 0.2258 | 0.2291 | 0.2324 | 0.2357 | 0.2389 | 0.2422 | 0.2454 | 0.2486 | 0.2518 | 0.2549 |
| 0.7 | 0.2580 | 0.2612 | 0.2642 | 0.2673 | 0.2704 | 0.2734 | 0.2764 | 0.2794 | 0.2823 | 0.2852 |
| 0.8 | 0.2881 | 0.2910 | 0.2939 | 0.2967 | 0.2996 | 0.3023 | 0.3051 | 0.3078 | 0.3106 | 0.3133 |
| 0.9 | 0.3159 | 0.3186 | 0.3212 | 0.3238 | 0.3264 | 0.3289 | 0.3315 | 0.3340 | 0.3365 | 0.3389 |
| 1.0 | 0.3413 | 0.3438 | 0.3461 | 0.3485 | 0.3508 | 0.3531 | 0.3554 | 0.3577 | 0.3599 | 0.3621 |
| 1.1 | 0.3643 | 0.3665 | 0.3686 | 0.3708 | 0.3729 | 0.3749 | 0.3770 | 0.3790 | 0.3810 | 0.3830 |
| 1.2 | 0.3849 | 0.3869 | 0.3888 | 0.3907 | 0.3925 | 0.3944 | 0.3962 | 0.3980 | 0.3997 | 0.4015 |
| 1.3 | 0.4032 | 0.4049 | 0.4066 | 0.4082 | 0.4099 | 0.4115 | 0.4131 | 0.4147 | 0.4162 | 0.4177 |
| 1.4 | 0.4192 | 0.4207 | 0.4222 | 0.4236 | 0.4251 | 0.4265 | 0.4279 | 0.4292 | 0.4306 | 0.4319 |
| 1.5 | 0.4332 | 0.4345 | 0.4357 | 0.4370 | 0.4382 | 0.4394 | 0.4406 | 0.4418 | 0.4429 | 0.4441 |
| 1.6 | 0.4452 | 0.4463 | 0.4474 | 0.4484 | 0.4495 | 0.4505 | 0.4515 | 0.4525 | 0.4535 | 0.4545 |
| 1.7 | 0.4554 | 0.4564 | 0.4573 | 0.4582 | 0.4591 | 0.4599 | 0.4608 | 0.4616 | 0.4625 | 0.4633 |
| 1.8 | 0.4641 | 0.4649 | 0.4656 | 0.4664 | 0.4671 | 0.4678 | 0.4686 | 0.4693 | 0.4699 | 0.4706 |
| 1.9 | 0.4713 | 0.4719 | 0.4726 | 0.4732 | 0.4738 | 0.4744 | 0.4750 | 0.4756 | 0.4761 | 0.4767 |
| 2.0 | 0.4772 | 0.4778 | 0.4783 | 0.4788 | 0.4793 | 0.4798 | 0.4803 | 0.4808 | 0.4812 | 0.4817 |
| 2.1 | 0.4821 | 0.4826 | 0.4830 | 0.4834 | 0.4838 | 0.4842 | 0.4846 | 0.4850 | 0.4854 | 0.4857 |
| 2.2 | 0.4861 | 0.4864 | 0.4868 | 0.4871 | 0.4875 | 0.4878 | 0.4881 | 0.4884 | 0.4887 | 0.4890 |
| 2.3 | 0.4893 | 0.4896 | 0.4898 | 0.4901 | 0.4904 | 0.4906 | 0.4909 | 0.4911 | 0.4913 | 0.4916 |
| 2.4 | 0.4918 | 0.4920 | 0.4922 | 0.4925 | 0.4927 | 0.4929 | 0.4931 | 0.4932 | 0.4934 | 0.4936 |
| 2.5 | 0.4938 | 0.4940 | 0.4941 | 0.4943 | 0.4945 | 0.4946 | 0.4948 | 0.4949 | 0.4951 | 0.4952 |
| 2.6 | 0.4953 | 0.4955 | 0.4956 | 0.4957 | 0.4959 | 0.4960 | 0.4961 | 0.4962 | 0.4963 | 0.4964 |
| 2.7 | 0.4965 | 0.4966 | 0.4967 | 0.4968 | 0.4969 | 0.4970 | 0.4971 | 0.4972 | 0.4973 | 0.4974 |
| 2.8 | 0.4974 | 0.4975 | 0.4976 | 0.4977 | 0.4977 | 0.4978 | 0.4979 | 0.4979 | 0.4980 | 0.4981 |
| 2.9 | 0.4981 | 0.4982 | 0.4982 | 0.4983 | 0.4984 | 0.4984 | 0.4985 | 0.4985 | 0.4986 | 0.4986 |
| 3.0 | 0.4987 | 0.4987 | 0.4987 | 0.4988 | 0.4988 | 0.4989 | 0.4989 | 0.4989 | 0.4990 | 0.4990 |
| 3.1 | 0.4990 | 0.4991 | 0.4991 | 0.4991 | 0.4992 | 0.4992 | 0.4992 | 0.4992 | 0.4993 | 0.4993 |
| 3.2 | 0.4993 | 0.4993 | 0.4994 | 0.4994 | 0.4994 | 0.4994 | 0.4994 | 0.4995 | 0.4995 | 0.4995 |
| 3.3 | 0.4995 | 0.4995 | 0.4995 | 0.4996 | 0.4996 | 0.4996 | 0.4996 | 0.4996 | 0.4996 | 0.4997 |
| 3.4 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4998 |
| 3.5 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 |
| 3.6 | 0.4998 | 0.4998 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 |
| 3.7 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 |
| 3.8 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 | 0.4999 |
| 3.9 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 |

FOLD AND TEAR ALONG PERFORATION

(NO MARKS WILL BE GIVEN FOR WORK DONE ON THIS PAGE)

FOLD AND TEAR ALONG PERFORATION

TEAR-OUT PAGE

(NO MARKS WILL BE GIVEN FOR WORK DONE ON THIS PAGE)

FOLD AND TEAR ALONG PERFORATION

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| M1 | M2 | M3 | M4 |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ |

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MATHEMATICS 30

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MATHEMATICS 30

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

## Mathématiques 30

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# MATHÉMATIQUES 30

## DESCRIPTION

Durée: Deux heures et demie

Total des points possibles: 65

C'est un examen à **livre fermé** qui comprend trois parties:

La PARTIE A a 40 questions à choix multiples dont chacune vaut un point.

La PARTIE B a 12 questions ouvertes à correction mécanographique dont chacune vaut un point.

La PARTIE C a trois questions écrites pour un total de 13 points.

Une feuille à détacher de formules et de cotes z est incluse dans ce livret.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

## INSTRUCTIONS GÉNÉRALES

Remplissez les renseignements demandés sur la feuille de réponses et sur le livret d'examen en suivant les instructions de l'examinateur.

Vous êtes tenus d'apporter votre propre calculatrice scientifique approuvée.

Lisez attentivement les instructions pour chaque partie avant de commencer.

**NE PLIEZ NI LA FEUILLE DE RÉPONSES NI LE LIVRET D'EXAMEN.**

L'examinateur ramassera votre feuille de réponses et votre livret d'examen et les fera parvenir à Alberta Education.

JANVIER 1990

# PARTIE A

## INSTRUCTIONS

Il y a 40 questions à choix multiples dans cette partie de l'examen et chacune d'elles a une valeur d'un point. Tous les nombres utilisés dans les questions doivent être considérés des nombres **exacts** et ne sont pas le résultat de mesures.

Lisez attentivement chaque question et choisissez, parmi les réponses proposées, celle qui complète **le mieux** l'énoncé ou répond **le mieux** à la question. Trouvez le numéro de cette question sur la feuille de réponses séparée qui est fournie et remplissez l'espace qui correspond à votre choix. **Utilisez seulement un crayon HB.**

**Exemple**

Cet examen porte sur la matière suivante

A. Biologie
B. Physique
C. Chimie
D. Mathématiques

**Feuille de réponses**

| A | B | C | D |
|---|---|---|---|
| ① | ② | ③ | ● |

Si vous voulez changer votre réponse, effacez d'abord complètement votre première réponse.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

NE TOURNEZ PAS LA PAGE POUR COMMENCER L'EXAMEN
AVANT QUE L'EXAMINATEUR NE VOUS LE DISE.

1. Dans $\Delta ABC$, $\angle B = 118°$, $b = 32,6$ cm et $a = 16,3$ cm. La mesure de $\angle C$ arrondie au dixième de degré est

   A. 63,8°

   B. 54,2°

   C. 35,8°

   D. 26,2°

2. Un angle de 340° exprimé en radians égale

   A. $\frac{9\pi}{17}$ rad

   B. $\frac{17\pi}{9}$ rad

   C. $\frac{9}{17\pi}$ rad

   D. $\frac{17}{9\pi}$ rad

3. Si $\text{tg}\ \theta = 0,6$, $\sec^2 \theta$ égale

   A. 1,60
   B. 1,36
   C. 1,17
   D. 0,64

4. Si $2 \sin \theta + 1 = 0$, $0 \leqq \theta < 2\pi$, $\theta$ est égal à

   A. $\frac{\pi}{6}, \frac{5\pi}{6}$

   B. $\frac{\pi}{6}, \frac{11\pi}{6}$

   C. $\frac{5\pi}{6}, \frac{7\pi}{6}$

   D. $\frac{7\pi}{6}, \frac{11\pi}{6}$

5. Si $\sin \theta = \frac{a}{b}$ et $\cos \theta = \frac{c}{d}$, tg $\theta$ égale

A. $\frac{ac}{bd}$

B. $\frac{ad}{bc}$

C. $\frac{bc}{ad}$

D. $\frac{bd}{ac}$

6. Dans $\Delta PQR$, $PQ = 17$ cm, $QR = 80$ cm et $PR = 73$ cm. La mesure de $\angle PQR$ arrondie au degré est

A. 48°

B. 50°

C. 60°

D. 68°

7. Un angle $\theta$ est en position normale. Un cercle centré sur l'origine coupe les côtés de l'angle en un point sur l'axe des $x$ et en un point $P(a, b)$. La valeur de sec $\theta$ est donnée par

A. $\frac{\sqrt{a^2 + b^2}}{a}$

B. $\frac{\sqrt{a^2 + b^2}}{b}$

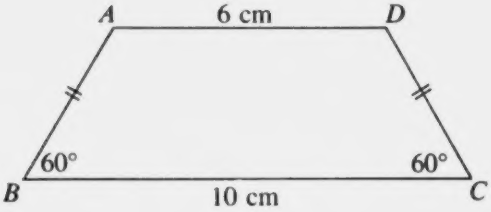
C. $\frac{a}{b}$

D. $\frac{b}{a}$

8. Une échelle de 300 cm de long fait un angle de 60° avec le sol quand elle est appuyée contre un mur vertical. En arrondissant au centimètre, de combien faut-il rapprocher le pied de l'échelle pour que l'angle avec le sol soit de 65°?

A. 127 cm
B. 120 cm
C. 30 cm
D. 23 cm

9. Le périmètre du trapèze *ABCD* donné à droite est



A. 20 cm
B. 22 cm
C. 24 cm
D. 32 cm

10. Le point $P(6, 8)$ est sur le cercle $(x - 2)^2 + (y - 6)^2 = 20$ et $PQ$ est un diamètre de ce cercle. Les coordonnées de $Q$ sont

A. $x = 4;\ y = 7$
B. $x = 4;\ y = 4$
C. $x = -2;\ y = 7$
D. $x = -2;\ y = 4$

11. Une équation d'une ellipse dont les sommets sont en $(0, \pm 4)$ et les foyers en $(0, \pm 2)$ est

A. $\frac{x^2}{16} + \frac{y^2}{12} = 1$

B. $\frac{x^2}{16} + \frac{y^2}{20} = 1$

C. $\frac{x^2}{12} + \frac{y^2}{16} = 1$

D. $\frac{x^2}{4} + \frac{y^2}{16} = 1$

12. Une parabole est l'ensemble des points qui sont équidistants d'une droite fixe et d'un point fixe qui n'est pas sur la droite. La droite fixe est appelée

A. directrice
B. asymptote
C. rayon focal
D. axe de symétrie

13. Pour l'ellipse $5x^2 + 9y^2 - 180 = 0$, un foyer est en

A. (0, 4)

B. (4, 0)

C. $(0, 2\sqrt{14})$

D. $(2\sqrt{14}, 0)$

14. La longueur du grand axe de l'ellipse $4x^2 + 9y^2 = 1$ est

A. $\frac{2}{3}$

B. 1

C. 4

D. 6

15. Les foyers d'une conique sont en (±5, 0) et la différence de ses rayons focaux est toujours 8. Une équation de la conique est

A. $9x^2 + 16y^2 = 144$

B. $9x^2 - 16y^2 = 144$

C. $16x^2 - 9y^2 = 144$

D. $16x^2 + 9y^2 = 144$

16. Un tapis elliptique est placé dans une pièce rectangulaire dont les dimensions sont 4,0 m sur 3,2 m. Si le tapis touche le milieu de chaque mur, la distance entre le centre de la pièce et le foyer du tapis est

A. 2,6 m
B. 2,4 m
C. 1,2 m
D. 0,8 m

17. Pour la parabole $(x - 1)^2 = 4(y - 2)$, la directrice est

A. $y = 1$
B. $y = -3$
C. $x = 0$
D. $x = -2$

18. Un cercle qui a un rayon de 4 unités est centré en (3, -5). Une équation du cercle est

A. $x^2 - 6x + y^2 + 10y + 18 = 0$

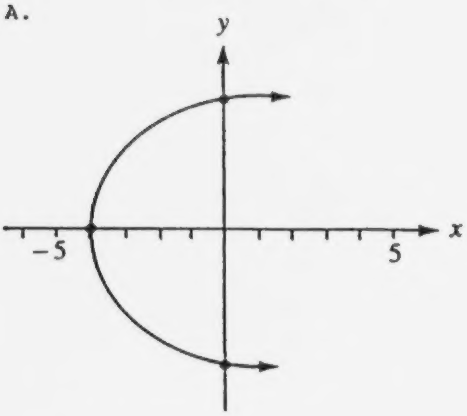
B. $x^2 + 6x + y^2 - 10y + 18 = 0$

C. $x^2 - 6x + y^2 + 10y + 30 = 0$

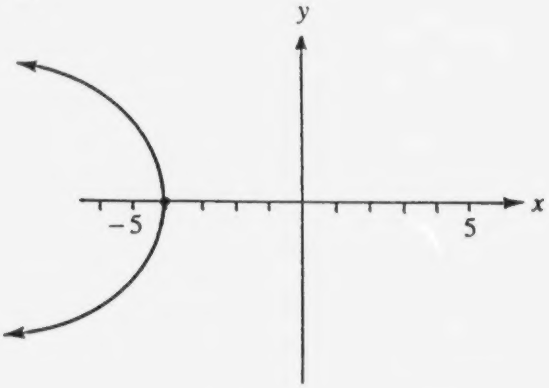
D. $x^2 + 6x + y^2 - 10y + 30 = 0$

19. Une parabole a son foyer en (-4, 0) et sa directrice est $x = 2$. Le graphique de cette parabole est

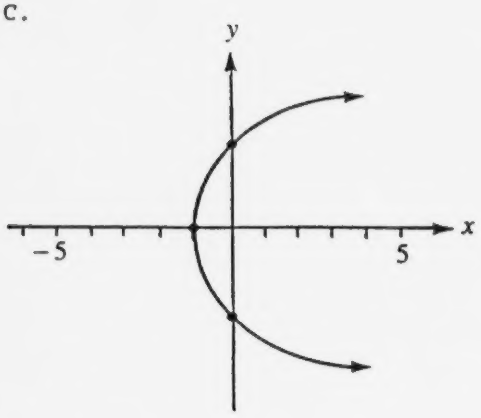
A.



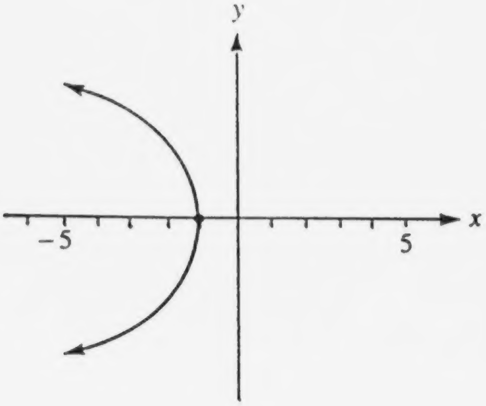
B.



C.



D.



20. Un point $P(16, y)$ est sur une asymptote de l'hyperbole $\frac{x^2}{16} - \frac{y^2}{49} = 1$. La valeur de $y$ est

A. $\pm 7$

B. $\pm \frac{64}{7}$

C. $\pm 28$

D. $\pm 49$

21. Si le premier terme d'une suite arithmétique est $5x$ et la différence commune est $2x$, une expression du terme général $t_n$ est

A. $\frac{7nx}{2}$

B. $3x + 2nx$

C. $5nx - 3x$

D. $(5x)(2x)^{n-1}$

22. La somme de la série décrite par $\sum_{n=40}^{55} (2n - 20)$ est

A. 4125
B. 1980
C. 1200
D. 1125

23. Un appareil réducteur est réglé pour produire des copies qui sont $k$ fois la hauteur de l'original ($k < 1$). Chaque fois qu'une copie est produite, elle est utilisée comme nouvel original pour produire une copie encore plus petite. Après **beaucoup** de réductions, on note que la somme des hauteurs d'un original de 8 cm et de **toutes** ses images approche de 36 cm. La valeur de $k$, donnée avec deux décimales, est

A. 0,78
B. 0,67
C. 0,33
D. 0,22

24. La raison de la suite géométrique $-\frac{1}{6}, \frac{1}{3}, -\frac{2}{3}, \ldots$ est

A. 2

B. $\frac{1}{2}$

C. $-\frac{1}{2}$

D. -2

25. La $\lim\limits_{n \to \infty} \left(\frac{2}{3}\right)^n$ est

A. 0
B. 1
C. ∞
D. inexistante

26. La somme de *n* termes d'une série arithmétique est 397,5. Si le premier et le dernier terme de la série sont respectivement 4 et 49, le nombre de termes de la série est

A. 8
B. 9
C. 14
D. 15

27. Si $x - 2, 2x, y, \ldots$ est une suite géométrique dont la raison est 3, *y* égale

A. 36
B. 18
C. 12
D. 6

28. Les notes *A, B, C, D, E, F* et *G* sont classées par ordre de grandeur, *A* étant la plus petite. Si *A* diminue légèrement et si *G* augmente de beaucoup,

A. la moyenne et la médiane augmentent toutes les deux
B. la moyenne et la médiane diminuent toutes les deux
C. la moyenne est inchangée mais la médiane augmente
D. la moyenne augmente mais la médiane est inchangée

29. Pour une distribution normale avec un moyenne de 30 et un écart type de 5, la probabilité d'obtenir une valeur inférieure à 20 ou supérieure à 35 est de

A. 0,8185
B. 0,4772
C. 0,3413
D. 0,1815

30. Les résultats d'un test suivent une distribution normale avec un écart type de 5. Si 75,8% des notes sont inférieures à 71, la probabilité qu'une note choisie au hasard soit inférieure à 61 est de

A. 0,0228
B. 0,0968
C. 0,1210
D. 0,1290

31. La collection de cartes de baseball de Ken se compose de quatre cartes des Blue Jays de Toronto, six cartes des Expos de Montréal et cinq cartes des Yankees de New York. Sur celles-ci, deux cartes représentent un lanceur de Toronto, une carte un lanceur de Montréal et trois cartes un lanceur de New York. Si on tire une carte de la collection au hasard, la probabilité qu'elle représente un lanceur d'une équipe canadienne est de

A. $\frac{1}{5}$

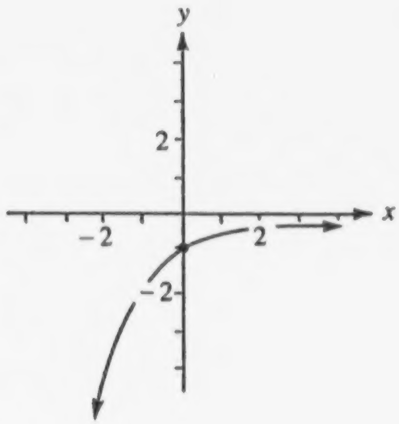
B. $\frac{3}{10}$

C. $\frac{3}{5}$

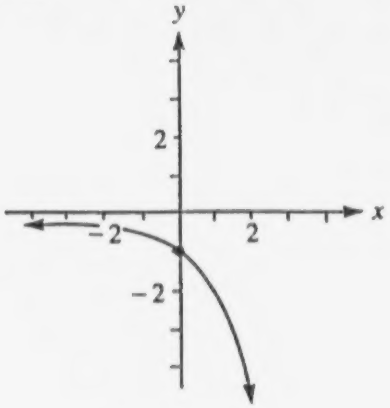
D. $\frac{2}{3}$

32. Le croquis qui représente le mieux la courbe de $y = \left(\frac{1}{2}\right)^x$ est

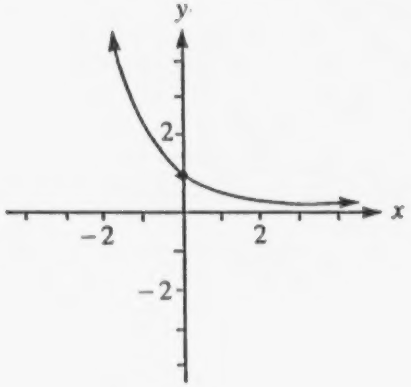
A.



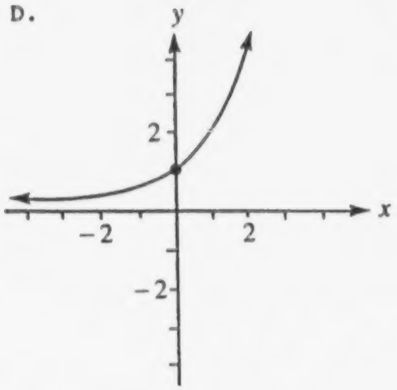
B.



C.



D.



33. La solution de l'équation $4^{2+3x} = 8^{1+x}$ est

A. 0

B. $-\frac{1}{3}$

C. $-\frac{1}{2}$

D. $-\frac{3}{5}$

34. Si $3^x = 4$, $\log_3(16)$ en fonction de $x$ égale

A. $12^x$

B. $3^{4x}$

C. $x^4$

D. $2x$

35. Dans l'équation $\log_x(4) = \frac{1}{3}$, la valeur de $x$ est

A. 64

B. 12

C. $\frac{4}{3}$

D. $\frac{1}{16}$

36. Trois facteurs du premier degré de $4x^3 + 16x^2 + 9x - 9$ sont

A. $x + 1$, $2x + 9$ et $2x - 1$

B. $x + 3$, $2x - 3$ et $2x + 1$

C. $x + 3$, $2x + 3$ et $2x - 1$

D. $x - 9$, $2x + 1$ et $2x + 1$

Utilisez l'information suivante pour répondre à la question 37.

I. $x^3 + x^2 - 4x - 4$

II. $-x^3 - x^2 + 4x + 4$

III. $2x^3 + 2x^2 - 8x - 8$

IV. $3x^3 + 3x^2 - 12x - 12$

37. Lesquels des polynômes donnés auront les mêmes zéros?

A. Tous
B. Aucun
C. Seulement I et II
D. Seulement I, III et IV

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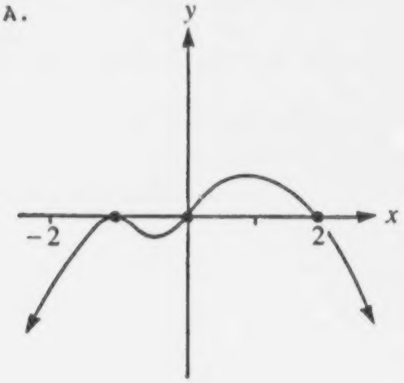
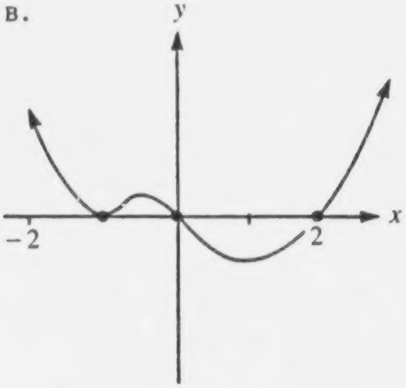
38. La courbe de $y = -2x(x - 1)^2(x + 2)$ est

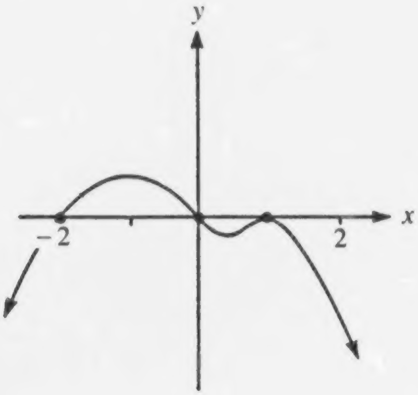
A.



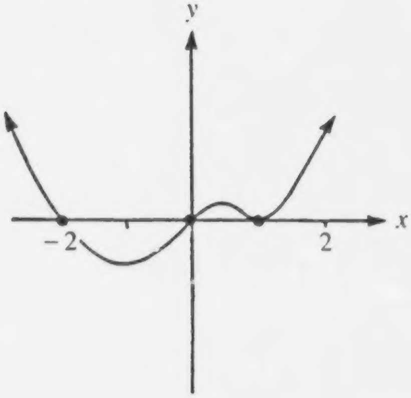
B.



C.



D.



39. Si $x^3 - 2x^2 + 2x + k$ est divisé par $x - 1$, le reste est

A. $k$
B. $k + 1$
C. $k - 1$
D. $1 - k$

40. Pour la courbe de $y = 3x^3 - 2x^2 - 7x - 2$, deux des abscisses à l'origine sont -1 et 2. La troisième abscisse à l'origine de cette courbe est

A. $\frac{5}{3}$

B. $\frac{2}{3}$

C. $\frac{1}{3}$

D. $-\frac{1}{3}$

**VOUS AVEZ MAINTENANT FINI LA PARTIE DES QUESTIONS À CHOIX MULTIPLES DE L'EXAMEN. PASSEZ DIRECTEMENT À LA PARTIE B.**

## PARTIE B

**INSTRUCTIONS**

Il y a 12 questions ouvertes à correction mécanographique valant chacune un point dans cette partie de l'examen. Tous les nombres utilisés dans les questions doivent être considérés **exacts** et ne sont pas le résultat de mesures.

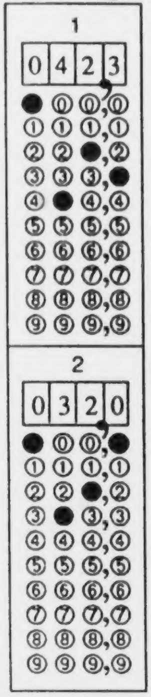
Lisez attentivement chaque question.

Résolvez chaque question et écrivez votre bonne réponse en arrondissant au dixième.

Notez votre réponse sur la feuille de réponses fournie en écrivant dans les cases du champ de réponse correspondant et en remplissant un cercle dans chaque colonne comme ci-dessous.
**Utilisez seulement un crayon HB.**

**Exemples de questions et de solutions**

**Feuille de réponses**



1. Si $\theta$ est aigu et $\sin \theta = 0,6735$, la mesure de $\theta$ au dixième de degré sera ______________.

   $\theta = 42,33777464...°$

   INSCRIVEZ 042,3

2. Pour la série arithmétique $-8 + (-5) + (-2) + ... + (85)$, le nombre de termes en arrondissant au dixième est ______________.

   $85 = -8 + (n - 1)(3)$

   $93 = 3n - 3$

   $n = 32$

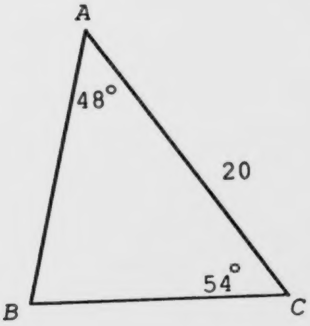
   INSCRIVEZ 032,0

Si vous voulez changer votre réponse, effacez d'abord complètement votre première réponse.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

**COMMENCEZ IMMÉDIATEMENT LA PARTIE B.**

1. Sur le croquis à droite, la mesure de *BC* arrondie au dixième est ____________.



NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

2. Si les solutions de $A \sin^2 \theta - B \sin \theta + 1 = 0$, $0° < \theta \leqq 90°$ sont 30° and 90°, la valeur de *B* arrondie au dixième est ____________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

3. Pour l'hyperbole $\frac{y^2}{16} - \frac{x^2}{36} = 1$, la distance de l'origine à un foyer, arrondie au dixième, est ____________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

4. Un cercle passant par $A(5, -3)$ a son centre en $C(-2, 6)$. La longueur du rayon de ce cercle, arrondie au dixième, est ____________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

5. Si $P(1, 10)$ est un point sur une ellipse dont les foyers sont $F_1(6, -2)$ et $F_2(-7, 4)$, la distance entre les sommets, arrondie au dixième, est ____________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

6. Pour la série géométrique $81 + 27 + 9 + \ldots,$ la somme, arrondie au dixième, est ____________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

7. Si le $n^e$ terme d'une série arithmétique est $4n - 5,$ la somme des 12 premiers termes, arrondie au dixième, est ____________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

8. La moyenne d'un test est 65. Si votre cote z à ce test est -1,6 et votre note 52, l'écart type pour ce test, arrondi au dixième, est ____________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

9. Si $4^{2x} = 90$, la valeur de $x$, arrondie au dixième, est ___________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

10. Si $\log_{64}(x) = -\frac{1}{6}$, la valeur de $x$, arrondie au dixième, est ___________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

11. Si $x - c$ est un facteur de $6x^3 + 3cx^2 - c^2x - 27$, la valeur de $c$, arrondie au dixième, est ___________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

12. Si $3x^3 - 25$ est divisé par $x - 5$, le reste, arrondi au dixième, est ___________.

NOTEZ LA RÉPONSE SUR LA FEUILLE DE RÉPONSES

**VOUS AVEZ MAINTENANT FINI LA PARTIE OUVERTE À CORRECTION MÉCANOGRAPHIQUE DE L'EXAMEN. PASSEZ DIRECTEMENT À LA PARTIE C.**

# PARTIE C

## INSTRUCTIONS

Il y a trois questions écrites pour un total de 13 points dans cette partie de l'examen. Tous les nombres utilisés dans les questions doivent être considérés **exacts** et ne sont pas le résultat de mesures.

Écrivez toutes vos réponses aussi nettement que possible dans le livret d'examen.

Vos solutions **doivent indiquer toutes** les explications, formules et calculs pertinents. On **ne donnera** tous les points **qu'aux** solutions indiquant **toutes** les explications, formules et calculs pertinents.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

COMMENCEZ IMMÉDIATEMENT LA PARTIE C.

À L'USAGE
EXCLUSIF
DU SERVICE

(4 points)

1. Un fabricant de balles de tennis fait un essai avec son produit en faisant tomber les balles d'une hauteur fixée et en mesurant la hauteur du rebond. Quand 5000 balles ont été soumises à l'essai, les hauteurs des rebonds suivaient une distribution normale avec une moyenne de 60 cm et un écart type de 4 cm.

   a) Combien de balles ont rebondi à moins de 63 cm?

   Le nombre de balles était ________

   b) Les balles qui n'ont pas atteint une hauteur de 55 cm ont été rejetées. Donnez avec deux décimales le pourcentage de balles de l'essai qui ont été rejetées.

   Le pourcentage rejeté était ________

À L'USAGE
EXCLUSIF
DU SERVICE

(5 points)

2. Deux routes droites se croisent en formant un angle de 49°. Une voiture est garée sur une de ces routes à 67 m de l'intersection, et un camion est garé sur l'autre à 152 m de l'intersection.

a) Tracez un croquis qui montre les positions des véhicules ainsi que les longueurs et les angles donnés.

b) Trouvez la **plus petite** valeur possible de la distance entre la voiture et le camion, en arrondissant au dixième de mètre.

La distance minimum est ________ m

c) Trouvez la **plus grande** valeur possible de la distance entre la voiture et le camion, en arrondissant au dixième de mètre.

La distance maximum est ________ m

À L'USAGE
EXCLUSIF
DU SERVICE

(4 points)

3. Joyce fait des économies pour acheter une voiture en déposant 150 dollars par mois dans un plan d'épargne qui paie un intérêt au taux de 9% par an composé mensuellement. Elle fait son dépôt à la fin de chaque mois. Trouvez le montant accumulé immédiatement après la $5^e$ année, en arrondissant au dollar.

Le montant accumulé est ______________

VOUS AVEZ MAINTENANT FINI L'EXAMEN. SI VOUS AVEZ DU TEMPS, VOUS VOUDREZ PEUT-ÊTRE RELIRE ET VÉRIFIER VOS RÉPONSES.

FEUILLE À DÉTACHER

PLIER ET DÉTACHER LE LONG DE LA PERFORATION

# MATHÉMATIQUES 30
# FEUILLE DE FORMULES

## I. Trigonométrie

1. $\pi = 3{,}14159$
2. $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$
3. $a^2 = b^2 + c^2 - 2bc \cos A$
4. $\sin^2 A + \cos^2 A = 1$
5. $1 + \mathrm{tg}^2 A = \sec^2 A$
6. $1 + \mathrm{cotg}^2 A = \mathrm{cosec}^2 A$
7. $\sin\left(\dfrac{\pi}{2} - \theta\right) = \cos \theta$
8. $\cos\left(\dfrac{\pi}{2} - \theta\right) = \sin \theta$
9. $\sin(A + B) = \sin A \cos B + \cos A \sin B$
10. $\sin(A - B) = \sin A \cos B - \cos A \sin B$
11. $\cos(A + B) = \cos A \cos B - \sin A \sin B$
12. $\cos(A - B) = \cos A \cos B + \sin A \sin B$
13. $\sin(-\theta) = -\sin \theta$
14. $\cos(-\theta) = \cos \theta$
15. $\mathrm{tg}(-\theta) = -\mathrm{tg}\, \theta$

## II. Relations quadratiques

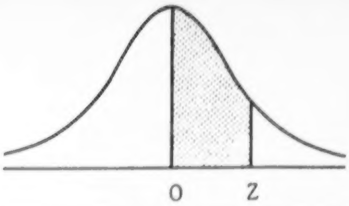
1. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
2. $d = \dfrac{|Ax_1 + By_1 + C|}{\sqrt{A^2 + B^2}}$
3. $M\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right)$
4. $(x - h)^2 + (y - k)^2 = r^2$
5. $x^2 + y^2 + Dx + Ey + F = 0$
6. $(y - k)^2 = 4p(x - h)$
7. $(x - h)^2 = 4p(y - k)$
8. $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1,\ a^2 = b^2 + c^2$
9. $\dfrac{y^2}{a^2} + \dfrac{x^2}{b^2} = 1,\ a^2 = b^2 + c^2$
10. $\dfrac{x^2}{a^2} - \dfrac{y^2}{b^2} = 1,\ c^2 = a^2 + b^2$
11. $\dfrac{y^2}{a^2} - \dfrac{x^2}{b^2} = 1,\ c^2 = a^2 + b^2$

## III. Suites, Séries et Limites

1. $t_n = a + (n - 1)d$
2. $S_n = \dfrac{n(a + t_n)}{2}$
3. $S_n = \dfrac{n[2a + (n - 1)d]}{2}$
4. $A = P(1 + i)^n$
5. $t_n = ar^{n-1}$
6. $S_n = \dfrac{a(r^n - 1)}{r - 1}$
7. $S_n = \dfrac{rt_n - a}{r - 1}$
8. $S = \dfrac{a}{1 - r},\ -1 < r < 1$

## IV. Statistiques

1. $\mu = \dfrac{x_1 + x_2 + \ldots + x_n}{n}$
2. $\sigma = \sqrt{\dfrac{(x_1 - \mu)^2 + \ldots + (x_n - \mu)^2}{n}}$
3. $z = \dfrac{x - \mu}{\sigma}$



## SURFACES SOUS LA COURBE NORMALE TYPE

| z | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0,0000 | 0,0040 | 0,0080 | 0,0120 | 0,0160 | 0,0199 | 0,0239 | 0,0279 | 0,0319 | 0,0359 |
| 0.1 | 0,0398 | 0,0438 | 0,0478 | 0,0517 | 0,0557 | 0,0596 | 0,0636 | 0,0675 | 0,0714 | 0,0754 |
| 0.2 | 0,0793 | 0,0832 | 0,0871 | 0,0910 | 0,0948 | 0,0987 | 0,1026 | 0,1064 | 0,1103 | 0,1141 |
| 0.3 | 0,1179 | 0,1217 | 0,1255 | 0,1293 | 0,1331 | 0,1368 | 0,1406 | 0,1443 | 0,1480 | 0,1517 |
| 0,4 | 0,1554 | 0,1591 | 0,1628 | 0,1664 | 0,1700 | 0,1736 | 0,1772 | 0,1808 | 0,1844 | 0,1879 |
| 0,5 | 0,1915 | 0,1950 | 0,1985 | 0,2019 | 0,2054 | 0,2088 | 0,2123 | 0,2157 | 0,2190 | 0,2224 |
| 0,6 | 0,2258 | 0,2291 | 0,2324 | 0,2357 | 0,2389 | 0,2422 | 0,2454 | 0,2486 | 0,2518 | 0,2549 |
| 0,7 | 0,2580 | 0,2612 | 0,2642 | 0,2673 | 0,2704 | 0,2734 | 0,2764 | 0,2794 | 0,2823 | 0,2852 |
| 0,8 | 0,2881 | 0,2910 | 0,2939 | 0,2967 | 0,2996 | 0,3023 | 0,3051 | 0,3078 | 0,3106 | 0,3133 |
| 0,9 | 0,3159 | 0,3186 | 0,3212 | 0,3238 | 0,3264 | 0,3289 | 0,3315 | 0,3340 | 0,3365 | 0,3389 |
| 1,0 | 0,3413 | 0,3438 | 0,3461 | 0,3485 | 0,3508 | 0,3531 | 0,3554 | 0,3577 | 0,3599 | 0,3621 |
| 1,1 | 0,3643 | 0,3665 | 0,3686 | 0,3708 | 0,3729 | 0,3749 | 0,3770 | 0,3790 | 0,3810 | 0,3830 |
| 1,2 | 0,3849 | 0,3869 | 0,3888 | 0,3907 | 0,3925 | 0,3944 | 0,3962 | 0,3980 | 0,3997 | 0,4015 |
| 1,3 | 0,4032 | 0,4049 | 0,4066 | 0,4082 | 0,4099 | 0,4115 | 0,4131 | 0,4147 | 0,4162 | 0,4177 |
| 1,4 | 0,4192 | 0,4207 | 0,4222 | 0,4236 | 0,4251 | 0,4265 | 0,4279 | 0,4292 | 0,4306 | 0,4319 |
| 1,5 | 0,4332 | 0,4345 | 0,4357 | 0,4370 | 0,4382 | 0,4394 | 0,4406 | 0,4418 | 0,4429 | 0,4441 |
| 1,6 | 0,4452 | 0,4463 | 0,4474 | 0,4484 | 0,4495 | 0,4505 | 0,4515 | 0,4525 | 0,4535 | 0,4545 |
| 1,7 | 0,4554 | 0,4564 | 0,4573 | 0,4582 | 0,4591 | 0,4599 | 0,4608 | 0,4616 | 0,4625 | 0,4633 |
| 1,8 | 0,4641 | 0,4649 | 0,4656 | 0,4664 | 0,4671 | 0,4678 | 0,4686 | 0,4693 | 0,4699 | 0,4706 |
| 1,9 | 0,4713 | 0,4719 | 0,4726 | 0,4732 | 0,4738 | 0,4744 | 0,4750 | 0,4756 | 0,4761 | 0,4767 |
| 2,0 | 0,4772 | 0,4778 | 0,4783 | 0,4788 | 0,4793 | 0,4798 | 0,4803 | 0,4808 | 0,4812 | 0,4817 |
| 2,1 | 0,4821 | 0,4826 | 0,4830 | 0,4834 | 0,4838 | 0,4842 | 0,4846 | 0,4850 | 0,4854 | 0,4857 |
| 2,2 | 0,4861 | 0,4864 | 0,4868 | 0,4871 | 0,4875 | 0,4878 | 0,4881 | 0,4884 | 0,4887 | 0,4890 |
| 2,3 | 0,4893 | 0,4896 | 0,4898 | 0,4901 | 0,4904 | 0,4906 | 0,4909 | 0,4911 | 0,4913 | 0,4916 |
| 2,4 | 0,4918 | 0,4920 | 0,4922 | 0,4925 | 0,4927 | 0,4929 | 0,4931 | 0,4932 | 0,4934 | 0,4936 |
| 2,5 | 0,4938 | 0,4940 | 0,4941 | 0,4943 | 0,4945 | 0,4946 | 0,4948 | 0,4949 | 0,4951 | 0,4952 |
| 2,6 | 0,4953 | 0,4955 | 0,4956 | 0,4957 | 0,4959 | 0,4960 | 0,4961 | 0,4962 | 0,4963 | 0,4964 |
| 2,7 | 0,4965 | 0,4966 | 0,4967 | 0,4968 | 0,4969 | 0,4970 | 0,4971 | 0,4972 | 0,4973 | 0,4974 |
| 2,8 | 0,4974 | 0,4975 | 0,4976 | 0,4977 | 0,4977 | 0,4978 | 0,4979 | 0,4979 | 0,4980 | 0,4981 |
| 2,9 | 0,4981 | 0,4982 | 0,4982 | 0,4983 | 0,4984 | 0,4984 | 0,4985 | 0,4985 | 0,4986 | 0,4986 |
| 3,0 | 0,4987 | 0,4987 | 0,4987 | 0,4988 | 0,4988 | 0,4989 | 0,4989 | 0,4989 | 0,4990 | 0,4990 |
| 3,1 | 0,4990 | 0,4991 | 0,4991 | 0,4991 | 0,4992 | 0,4992 | 0,4992 | 0,4992 | 0,4993 | 0,4993 |
| 3,2 | 0,4993 | 0,4993 | 0,4994 | 0,4994 | 0,4994 | 0,4994 | 0,4994 | 0,4995 | 0,4995 | 0,4995 |
| 3,3 | 0,4995 | 0,4995 | 0,4995 | 0,4996 | 0,4996 | 0,4996 | 0,4996 | 0,4996 | 0,4996 | 0,4997 |
| 3,4 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4997 | 0,4998 |
| 3,5 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 | 0,4998 |
| 3,6 | 0,4998 | 0,4998 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 |
| 3,7 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 |
| 3,8 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 | 0,4999 |
| 3,9 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 | 0,5000 |

FEUILLE À
DÉTACHER

(ON NE DONNERA PAS DE POINTS POUR LE TRAVAIL FAIT SUR CETTE PAGE)

PLIER ET DÉTACHER LE LONG DE LA PERFORATION

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MATHÉMATIQUES 30

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**PERMANENT MAILING ADDRESS:** ____________________
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MATHÉMATIQUES 30

FORTIS · ET · LIBER

# GRADE 12
# DIPLOMA EXAMINATION

## Physics 30

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# PHYSICS 30

## DESCRIPTION

Time: 2½ hours

Total possible marks: 70

This is a **closed-book** examination consisting of **two** parts:

PART A has 49 multiple-choice questions each with a value of one mark.

PART B has four written-response questions for a total of 21 marks.

A physics data booklet is provided for your reference.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

## GENERAL INSTRUCTIONS

Fill in the information required on the answer sheet and the examination booklet as directed by the examiner.

You are expected to provide your own approved scientific calculator.

Carefully read the instructions for each part before proceeding.

**DO NOT FOLD EITHER THE ANSWER SHEET OR THE EXAMINATION BOOKLET.**

The presiding examiner will collect your answer sheet and examination booklet and send them to Alberta Education.

**JANUARY 1990**

# PART A

## INSTRUCTIONS

In this part of the examination, there are 49 multiple-choice questions each with a value of one mark. All numbers used in the questions are to be considered as the result of a measurement.

Read each question carefully and decide which of the choices **best** completes the statement or answers the question. Locate that question number on the separate answer sheet provided and fill in the space that corresponds to your choice. **Use an HB pencil only.**

**Example**

This diploma examination is for the subject of

**A.** Biology
**B.** Physics
**C.** Chemistry
**D.** Mathematics

**Answer Sheet**

| A | B | C | D |
|---|---|---|---|
| ① | ● | ③ | ④ |

If you wish to change an answer, erase your first mark completely.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

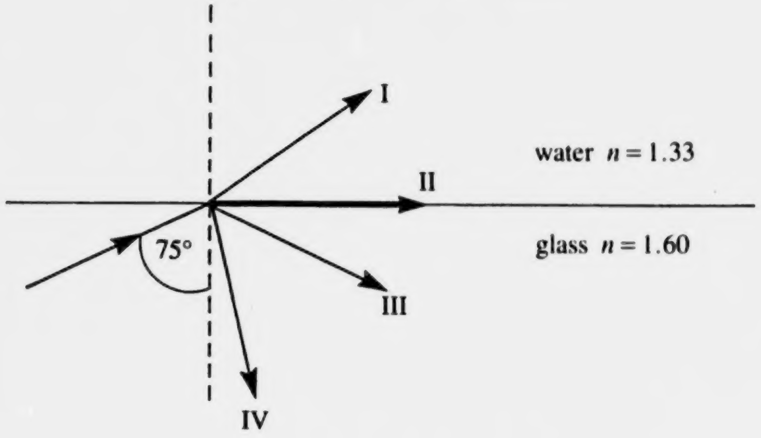
**DO NOT TURN THE PAGE TO START THE EXAMINATION UNTIL TOLD TO DO SO BY THE PRESIDING EXAMINER.**

**1.** Monochromatic light passes through a double slit of separation $1.5 \times 10^{-4}$ m. If bright interference bands are $1.4 \times 10^{-2}$ m apart on a screen that is 3.7 m from the double slit, the calculated wavelength of the light would be

**A.** $4.2 \times 10^{-7}$ m
**B.** $5.4 \times 10^{-7}$ m
**C.** $5.7 \times 10^{-7}$ m
**D.** $6.2 \times 10^{-7}$ m

**Use the following information to answer question 2.**

Light at a Glass-Water Interface



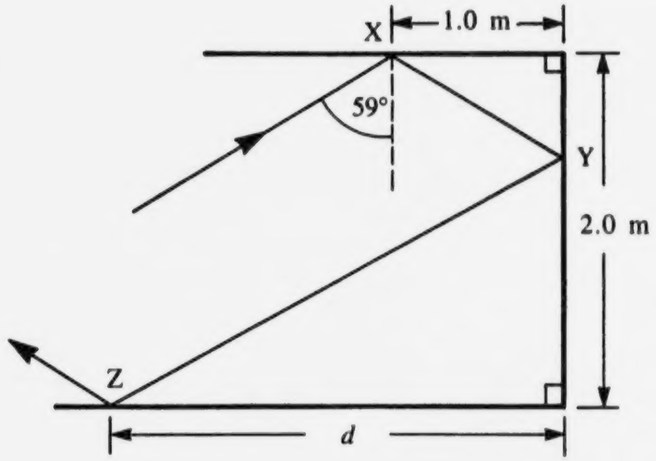
**2.** The correct path of the ray is shown by

**A.** I
**B.** II
**C.** III
**D.** IV

**3.** To determine the speed of light, Huygens used

**A.** toothed wheels
**B.** flashing lanterns
**C.** astronomical data
**D.** octagonal mirrors

**Use the following information to answer question 4.**



Light is incident upon a reflective surface at X and is further reflected at Y and Z.

**4.** The distance *d* is

**A.** 2.5 m
**B.** 2.3 m
**C.** 1.9 m
**D.** 1.7 m

---

**5.** If a spaceship could move at 1/1500th the speed of light, how long would it take to travel 2.50 light-years? (A light-year is the distance travelled by light in one year.)

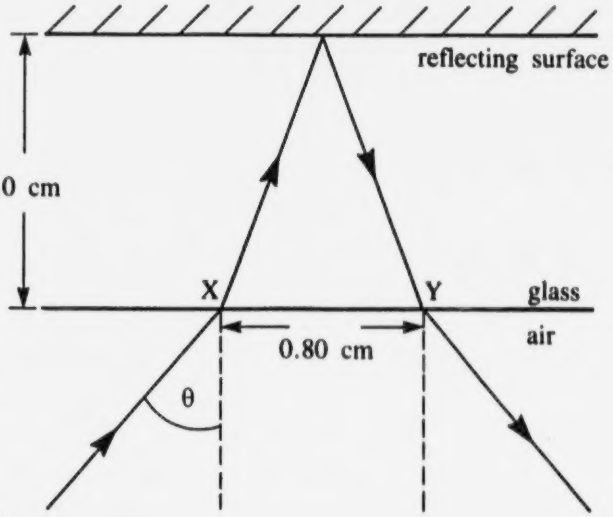
**A.** $3.75 \times 10^{3}$ s
**B.** $1.18 \times 10^{11}$ s
**C.** $8.46 \times 10^{12}$ s
**D.** $3.56 \times 10^{19}$ s

**6.** Wavelength is **not** a good criterion for categorizing light because wavelength

**A.** is inversely proportional to frequency
**B.** is directly proportional to speed
**C.** changes during diffraction
**D.** changes during refraction

**Use the following information to answer question 7.**

Reflection in a Thick Mirror



Light enters the mirror at X and leaves at Y.

**7.** If the refractive index of the glass is 1.6, the angle of incidence θ must be

**A.** 40°
**B.** 36°
**C.** 22°
**D.** 13°

---

**8.** Light passing from glass ($n = 1.5$) into water ($n = 1.3$) will

**A.** increase in both speed and wavelength
**B.** decrease in both speed and wavelength
**C.** increase in speed but decrease in wavelength
**D.** decrease in speed but increase in wavelength

**9.** The formation of the Poisson spot is a result of

**A.** refraction and destructive interference
**B.** diffraction and destructive interference
**C.** refraction and constructive interference
**D.** diffraction and constructive interference

**10.** The energy of scattered light is directly proportional to the fourth power of the frequency. If the frequency of violet light is twice that of red light, then the energy of scattered violet light would be

**A.** 16 times that of scattered red light
**B.** 8 times that of scattered red light
**C.** 1/8 times that of scattered red light
**D.** 1/16 times that of scattered red light

**Use the following information to answer question 11.**

Statements about the Ether

I. The ether has inconsistent physical properties.

II. The existence of the ether is widely accepted at present.

III. The existence of the ether was established experimentally.

IV. Properties of the ether were required to explain the photon model of light.

**11.** The statement(s) consistent with current views of the ether theory is(are)

**A.** I only
**B.** III only
**C.** I and II
**D.** II and IV

---

**Use the following information to answer question 12.**

Energy Beams

I. X-rays
II. Cathode rays
III. Red laser light
IV. Stream of alpha particles

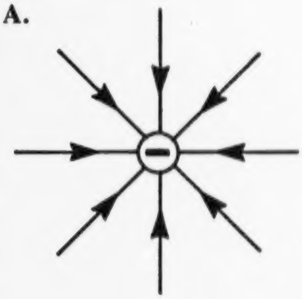
**12.** Which energy beams can be deflected by an electric field?

**A.** I and II
**B.** I and III
**C.** II and IV only
**D.** II, III, and IV

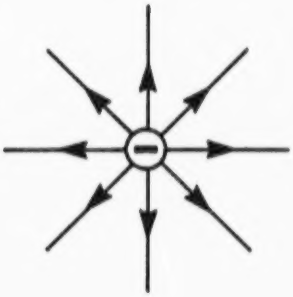
---

**13.** The electric field of an electron at rest may be **best** represented by

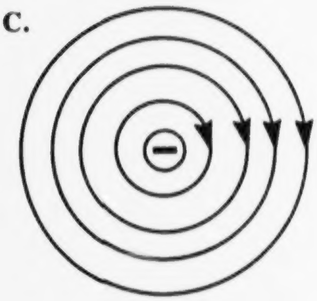
**A.**



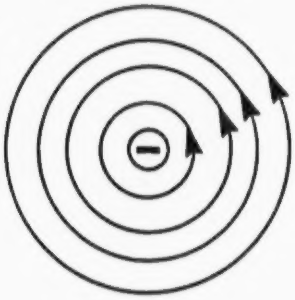
**B.**



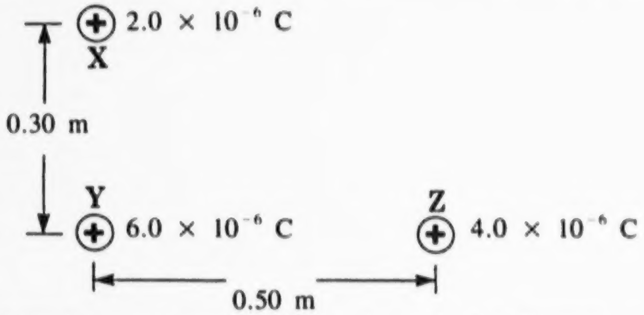
**C.**



**D.**



**Use the following information to answer question 14.**



$2.0 \times 10^{-6}$ C
X
0.30 m
Y
$6.0 \times 10^{-6}$ C
Z
$4.0 \times 10^{-6}$ C
0.50 m

Charges X, Y, and Z, with magnitudes as shown in the diagram, are placed at the vertices of a right-angled triangle.

**14.** The force on charge Y has a magnitude of

**A.** 2.1 N
**B.** 1.5 N
**C.** 1.0 N
**D.** 0.34 N

15. A charged oil drop of mass $1.9 \times 10^{-15}$ kg is suspended in a vertical electric field of strength $6.0 \times 10^{3}$ N/C. For equilibrium, the charge on the oil drop must be

A. $3.2 \times 10^{-19}$ C
B. $3.1 \times 10^{-18}$ C
C. $1.9 \times 10^{-14}$ C
D. $1.1 \times 10^{-11}$ C

16. A positively charged pith ball P will attract a neutral pith ball Q. This attraction occurs because the negative charge induced on Q is

A. larger than the positive charge induced on Q
B. smaller than the positive charge induced on Q
C. closer to P than the positive charge induced on Q
D. farther from P than the positive charge induced on Q

17. Two charged bodies repel each other with a force of $F$. The charge on one is doubled, and the charge on the other is increased by a factor of 7/3. If the distance between them is then tripled, the final resulting force would be

A. $42F$
B. $14F/3$
C. $14F/27$
D. $F/9$

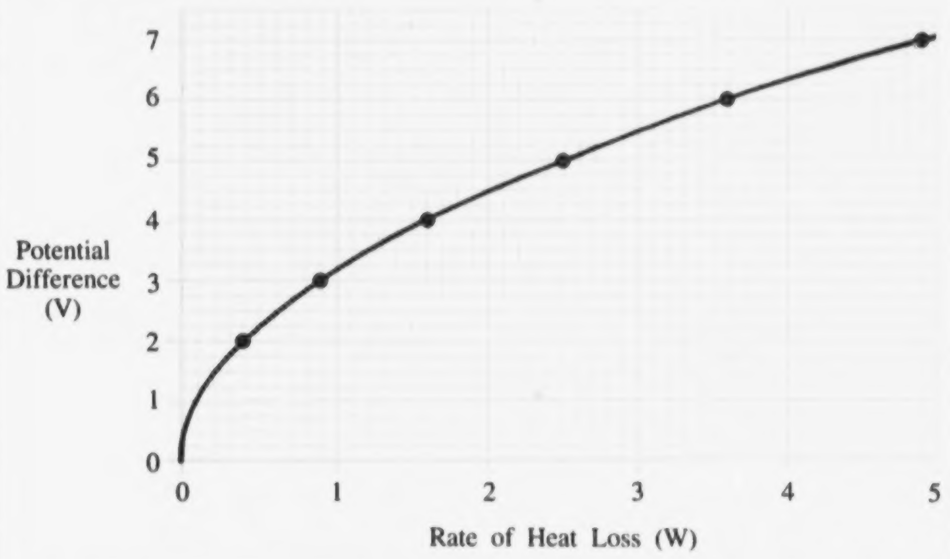
18. When $7.0 \times 10^{-15}$ J of work are required to move an electron from one charged plate to another, the potential difference between the plates is

A. $4.4 \times 10^{4}$ V
B. $2.3 \times 10^{-19}$ V
C. $1.6 \times 10^{-19}$ V
D. $1.1 \times 10^{-33}$ V

19. When Ohm's Law applies, the current varies

A. directly as the voltage and directly as the resistance
B. directly as the voltage and inversely as the resistance
C. inversely as the voltage and directly as the resistance
D. inversely as the voltage and inversely as the resistance

**Use the following information to answer questions 20 and 21.**



The graph represents potential difference as a function of rate of heat loss for a fixed resistance.

**20.** The magnitude of the resistance is

**A.** 1.6 Ω
**B.** 2.5 Ω
**C.** 6.4 Ω
**D.** 10 Ω

**21.** What is the current through the resistance when the potential difference is 6.0 V?

**A.** 0.60 A
**B.** 1.7 A
**C.** 3.6 A
**D.** 22 A

---

**22.** The magnetic force experienced by a charged particle moving through any magnetic field is

**A.** always greater than zero
**B.** constant regardless of the direction of the field
**C.** maximum when the velocity is parallel to the field
**D.** maximum when the velocity is perpendicular to the field

**23.** Magnetic field strength is measured in tesla (T). One set of units equivalent to 1 T is 1 N/(A•m). Another set of units equivalent to 1 T is

**A.** 1 J/C
**B.** 1 (N•C)/(m•s)
**C.** 1 (N•s)/(C•m)
**D.** 1 (kg•m)/(C•s)

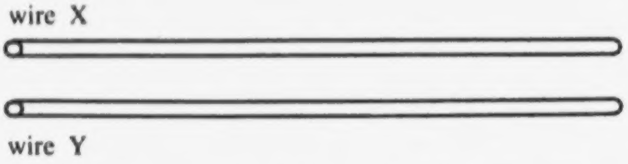
**24.** A beam of alpha particles is directed with a horizontal speed of $2.0 \times 10^7$ m/s into a mass spectrometer that has a vertical magnetic field strength of 3.0 T. What is the radius of the path of the beam in the spectrometer?

**A.** 0.072 m
**B.** 0.14 m
**C.** 0.28 m
**D.** 7.2 m

**25.** If a charged particle travelling at $3.00 \times 10^6$ m/s at right angles to a magnetic field of 0.125 T experiences a deflecting force of $1.20 \times 10^{-13}$ N, the particle could be

**A.** a proton
**B.** a neutron
**C.** an electron
**D.** an alpha particle

**Use the following information to answer question 26.**



Parallel wires X and Y carry electric currents.

**26.** If the direction of the current in wire X is reversed, then

**A.** the current in wire Y would be reversed
**B.** only the magnetic force on wire X would be reversed
**C.** only the magnetic force on wire Y would be reversed
**D.** the magnetic forces on both wires X and Y would be reversed

---

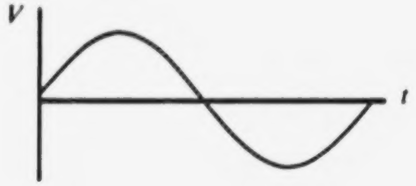
**27.** In a vacuum, the speed of all forms of electromagnetic radiation is

**A.** equal to the speed of light
**B.** the same as in all other media
**C.** inversely proportional to the frequency of the radiation
**D.** inversely proportional to the wavelength of the radiation

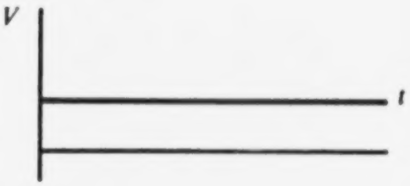
**Use the following information to answer question 28.**

A transformer induces a current in the secondary coil because of the magnetic field produced by the current in the primary coil. The graphs represent voltages applied to the primary coil of a transformer:

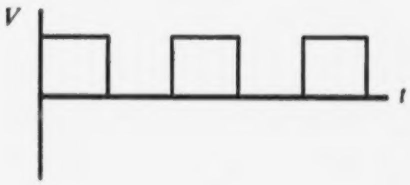
I.



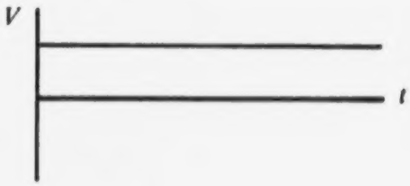
II.



III.



IV.



**28.** Which signals would cause the induction of a current in the secondary coil?

**A.** I and III
**B.** I and IV
**C.** II and III
**D.** III and IV

**Use the following information to answer question 29.**

Possible Descriptions of Light Waves

I. Transverse waves with the magnetic field direction at 180° to the electric field direction

II. Transverse waves with the magnetic field direction at 90° to the electric field direction

III. Longitudinal waves with the magnetic field direction at 180° to the electric field direction

IV. Longitudinal waves with the magnetic field direction at 90° to the electric field direction

**29.** The statement that correctly describes light waves is

**A.** I
**B.** II
**C.** III
**D.** IV

---

**30.** A current of 0.60 A passes through a solution of copper(II) sulphate in an electrolytic apparatus. The time required to deposit 0.45 g of copper from the $Cu^{2+}$ solution is calculated to be

**A.** 2.3 s
**B.** 5.0 s
**C.** $2.3 \times 10^{3}$ s
**D.** $5.0 \times 10^{3}$ s

**31.** The experimental value of $q/m$ for a proton is $9.6 \times 10^{7}$ C/kg. The value of $q/m$ for an alpha particle is

**A.** $1.9 \times 10^{8}$ C/kg
**B.** $9.6 \times 10^{7}$ C/kg
**C.** $4.8 \times 10^{7}$ C/kg
**D.** $2.4 \times 10^{7}$ C/kg

**32.** An electric field of $4.3 \times 10^{4}$ N/C and a perpendicular magnetic field of $1.3 \times 10^{-3}$ T are applied simultaneously to a beam of electrons. If the beam remains undeflected, the speed of the electrons must be

**A.** $5.6 \times 10^{-11}$ m/s
**B.** $3.0 \times 10^{-8}$ m/s
**C.** $1.6 \times 10^{4}$ m/s
**D.** $3.3 \times 10^{7}$ m/s

33. To demonstrate that electric charges in nature are made up of whole-number multiples of the smallest charge, Millikan used

**A.** three forces: gravitational, magnetic, and electric
**B.** two forces: gravitational and electric
**C.** two forces: magnetic and electric
**D.** only the electric force

34. The Bohr theory **best** explains

**A.** the photoelectric effect
**B.** intensities of spectral lines
**C.** emission and absorption spectra of hydrogen
**D.** electric and magnetic effects on spectral lines

**Use the following information to answer questions 35 and 36.**

Observations in Photoelectric Experiments

I. The magnitude of the current increases.
II. The magnitude of the current decreases.
III. The magnitude of the current is constant.
IV. The energy of the photoelectrons increases.
V. The energy of the photoelectrons decreases.
VI. The energy of the photoelectrons is constant.

35. In a photoelectric experiment, a student increases the intensity of the incident light while maintaining a constant frequency. What are the effects on the magnitude of the photoelectric current and on the energy of the photoelectrons?

**A.** I and IV
**B.** I and VI
**C.** III and IV
**D.** III and VI

36. In a photoelectric experiment, a student decreases the intensity of the incident light while increasing its frequency. What are the effects on the magnitude of the photoelectric current and on the energy of the photoelectrons?

**A.** II and IV
**B.** II and V
**C.** III and IV
**D.** III and VI

**37.** Light with a frequency of $8.50 \times 10^{14}$ Hz strikes a surface that has a work function of 3.00 eV. The maximum kinetic energy of an emitted photoelectron is

**A.** $5.6 \times 10^{-19}$ J
**B.** $4.5 \times 10^{-19}$ J
**C.** $4.0 \times 10^{-19}$ J
**D.** $8.4 \times 10^{-20}$ J

**38.** The stopping voltage for photoelectrons in a photoelectric cell is used to determine their

**A.** mass
**B.** energy
**C.** momentum
**D.** charge-to-mass ratio

**39.** An electron makes a transition from the fourth energy level of a hydrogen atom to the ground state. The wavelength of the radiation emitted is

**A.** $9.7 \times 10^{-8}$ m
**B.** $1.2 \times 10^{-7}$ m
**C.** $3.6 \times 10^{-7}$ m
**D.** $4.9 \times 10^{-7}$ m

**40.** The radius of the fourth Bohr orbit of the hydrogen atom is

**A.** $3.31 \times 10^{-12}$ m
**B.** $1.32 \times 10^{-11}$ m
**C.** $2.12 \times 10^{-10}$ m
**D.** $8.46 \times 10^{-10}$ m

**41.** The energy required to remove the outermost electron of a sodium atom is 5.1 eV. If an electron with a speed of $1.5 \times 10^{6}$ m/s strikes and ionizes a sodium atom, the maximum possible kinetic energy of the incident electron after the collision would be

**A.** 1.3 eV
**B.** 5.1 eV
**C.** 6.4 eV
**D.** 11.5 eV

**42.** An inadequacy of the Bohr atomic model is that

**A.** a radius cannot be calculated for hydrogen
**B.** an electron energy cannot be calculated for hydrogen
**C.** the spectrum of hydrogen cannot be predicted accurately
**D.** the relative brightness of the spectral lines of hydrogen cannot be predicted accurately

**Use the following information to answer question 43.**

Statements from Various Models of the Atom

I. The atom is neutral.
II. The bulk of the volume is empty space.
III. A negative fluid creates the bulk of the volume.
IV. The positive charges have a much greater mass than the negative charges.

**43.** Which statements are consistent with current understanding of the atom?

**A.** I and IV only
**B.** III and IV only
**C.** I, II, and IV
**D.** II, III, and IV

---

**44.** When will the rest mass of an object be greater than its relativistic mass?

**A.** Never
**B.** Only at low speeds
**C.** Only at high speeds
**D.** Only at the speed of light

**45.** The total potential difference through which a proton must be accelerated from rest to acquire a relativistic mass of $1.72 \times 10^{-27}$ kg is

**A.** $9.7 \times 10^{8}$ V
**B.** $9.4 \times 10^{8}$ V
**C.** $1.4 \times 10^{8}$ V
**D.** $2.8 \times 10^{7}$ V

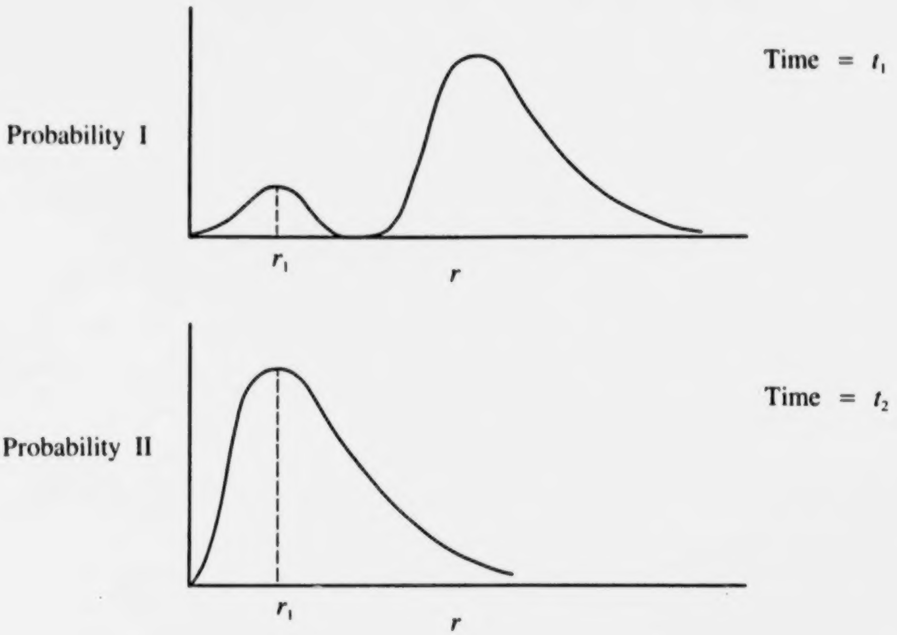
**46.** The momentum of an X-ray photon is directly proportional to its

**A.** mass
**B.** velocity
**C.** frequency
**D.** wavelength

**47.** An alpha particle and an electron are travelling at the same speed. The de Broglie wavelength for the alpha particle is

**A.** longer because of the greater mass of the alpha particle
**B.** shorter because of the greater mass of the alpha particle
**C.** longer because of the greater charge of the alpha particle
**D.** shorter because of the greater charge of the alpha particle

**Use the following information to answer question 48.**



The two diagrams represent the electron probability distribution for a hydrogen atom at different times. Probability II occurs some time later than Probability I.

**48.** Comparing the states of the hydrogen atom at the times $t_1$ and $t_2$, the change that has occurred in the atom is that

**A.** the average value of $r$ has increased
**B.** the probability of finding the electron at $r = 0$ has increased
**C.** an electron has moved from the ground state to an excited state
**D.** an electron has moved from an excited state to the ground state

---

**49.** Heisenberg's Uncertainty Principle states that the more accurately we know the position of a particle, the less accurately we know its

**A.** size
**B.** charge
**C.** amplitude
**D.** momentum

**YOU HAVE NOW COMPLETED THE MULTIPLE-CHOICE PART OF THE EXAMINATION. PROCEED DIRECTLY TO PART B.**

# PART B

## INSTRUCTIONS

In this part of the examination, there are four written-response questions for a total of 21 marks. All numbers used in the questions are to be considered as the result of a measurement.

Write your solutions in the examination booklet as neatly as possible.

Your solutions **must show all** pertinent explanations, calculations, and formulas. Full marks will be assigned **only** to those solutions that **show** all pertinent explanations, calculations, and formulas.

All numerical answers must be given correct to the appropriate number of significant digits.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. **No marks** will be given for work done on the tear-out pages.

**START PART B IMMEDIATELY.**

ARTMENT
E ONLY

([illegible] marks)

1. The mass of Saturn is 94.8 times that of Earth, and its radius is 9.45 times that of Earth. If an object weighs 155 N on Earth, what will it weigh on Saturn? (Reminder: Marks **will** be deducted if the physics steps for the calculation are not explicitly shown.)

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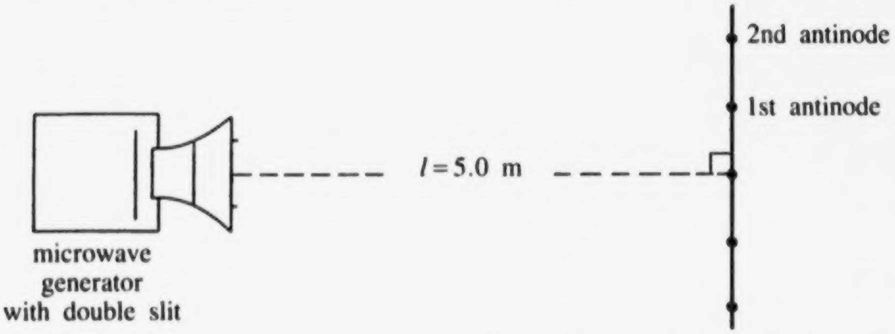
**(5 marks)**

**2.** The relativistic kinetic energy of a proton travelling at $2.76 \times 10^8$ m/s ($0.920c$) is $K_1$. A calculation using the classical Newtonian formula for kinetic energy gives the result $K_2$. Calculate the ratio $K_1/K_2$. Record your answer correct to three significant digits.

3. A microwave generator with a variable frequency $f$ is used to measure the spacing $d$ between two slits.


2nd antinode
1st antinode
$l = 5.0$ m
microwave generator with double slit

The distance $x$ between the first antinode (maximum signal) and the central maximum at seven different frequencies is given in the table below:

| $f$ ($10^{11}$ Hz) | $x$ (cm) |
|---|---|
| 4.0 | 3.6 |
| 3.0 | 4.8 |
| 2.0 | 7.4 |
| 1.3 | 12.0 |
| 1.0 | 14.2 |
| 0.75 | 20.4 |
| 0.60 | 24.6 |

(2 marks)

a. Draw a graph of distance $x$ as a function of frequency $f$, with the manipulated variable on the horizontal axis.

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**b.** Re-plot the data in a manner that gives a straight line graph through the origin. Clearly label the variables plotted. You may use the data booklet value for the speed of light.

(3 marks)

____________

____________________

**c.** Use a suitable averaging procedure to estimate the **best** value for the spacing *d* between the slits. You may use the data booklet value for the speed of light. Record your answer correct to two significant digits.

(2 marks)

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4. Both the classical wave model of light and the classical (Newtonian) particle model of light attempt to explain refraction.

**([illegible] marks)**

a. Compare and contrast the two explanations of the behavior of light as it passes from air to water.

Similarities:

Difference (in precise detail):

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**b.** Identify one piece of experimental evidence that supports **only one** of the classical models of light, stating which model is supported. Your evidence need **not** be restricted to refraction.

(1 mark)

**c.** Some later experiments produced results that contradict **both** classical models of light. Name one such experiment and state its result.

(1 mark)

**YOU HAVE NOW COMPLETED THE EXAMINATION. IF YOU HAVE TIME, YOU MAY WISH TO GO BACK AND CHECK YOUR ANSWERS.**

TEAR-OUT
PAGE

(NO MARKS WILL BE GIVEN FOR WORK DONE ON THIS PAGE)

FOLD AND TEAR ALONG PERFORATION

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M1 ☐

M2 ☐

M3 ☐

M4 ☐

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PHYSICS 30

NAME: (LAST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ (FIRST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐ DATE OF BIRTH: Y ☐☐ M ☐☐ D ☐☐ SEX: ☐

PERMANENT MAILING ADDRESS: ______________________________

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PHYSICS 30

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

## Physique 30

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# PHYSIQUE 30

## DESCRIPTION

Durée: Deux heures et demie

Total des points possibles: 70

C'est un examen à **livre fermé** qui comprend deux parties:

La PARTIE A a 49 questions à choix multiples dont chacune vaut un point.

La PARTIE B a quatre questions écrites pour un total de 21 points.

Un livret de données de physique vous est fourni comme référence.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

## INSTRUCTIONS GÉNÉRALES

Remplissez les renseignements demandés sur la feuille de réponses et sur le livret d'examen en suivant les instructions de l'examinateur.

Vous êtes tenu d'apporter votre propre calculatrice scientifique approuvée.

Lisez attentivement les instructions pour chaque partie avant de commencer.

**NE PLIEZ NI LA FEUILLE DE RÉPONSES NI LE LIVRET D'EXAMEN.**

L'examinateur ramassera votre feuille de réponses et votre livret d'examen et les fera parvenir à Alberta Education.

**JANVIER 1990**

## PARTIE A

**INSTRUCTIONS**

Il y a 49 questions à choix multiples dans cette partie de l'examen et chacune d'elles a une valeur d'un point. Tous les nombres utilisés dans les questions doivent être considérés comme étant le résultat de mesures.

Lisez chaque question attentivement et choisissez, parmi les réponses proposées, celle qui complète **le mieux** l'énoncé ou répond **le mieux** à la question. Trouvez le numéro de cette question sur la feuille de réponses séparée qui est fournie et remplissez l'espace qui correspond à votre choix. **Utilisez seulement un crayon HB.**

| **Exemple** | **Feuille de réponses** | | | |
|---|---|---|---|---|
| | A | B | C | D |
| Cet examen porte sur la matière suivante | | | | |
| A. Biologie<br>B. Physique<br>C. Chimie<br>D. Mathématiques | ① | ● | ③ | ④ |

Si vous voulez changer votre réponse, effacez d'abord complètement votre première réponse.

> NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

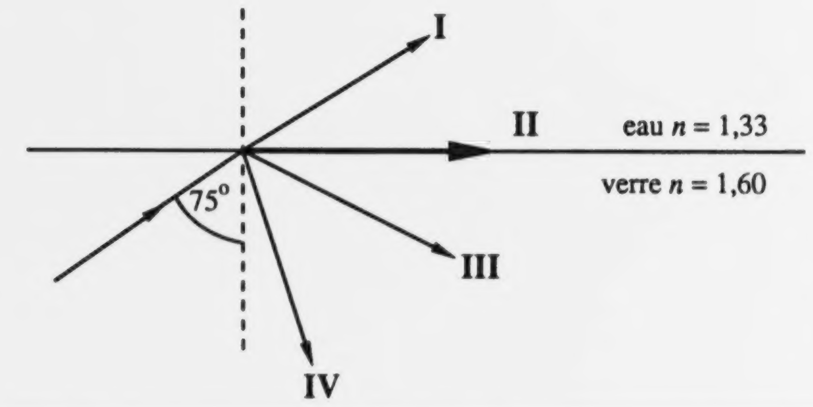
NE TOURNEZ PAS LA PAGE POUR COMMENCER L'EXAMEN
AVANT QUE L'EXAMINATEUR NE VOUS LE DISE.

1. Une lumière monochromatique traverse une double fente dont la séparation est de $1,5 \times 10^{-4}$ m. Si les franges brillantes d'interférence sont distantes de $1,4 \times 10^{-2}$ m sur un écran situé à 3,7 m de la double fente, la longueur d'onde calculée pour la lumière sera de

   A. $4,2 \times 10^{-7}$ m
   B. $5,4 \times 10^{-7}$ m
   C. $5,7 \times 10^{-7}$ m
   D. $6,2 \times 10^{-7}$ m

Utilisez l'information suivante pour répondre à la question 2.

Lumière à l'interface verre-eau



2. La bonne trajectoire du rayon est donnée par

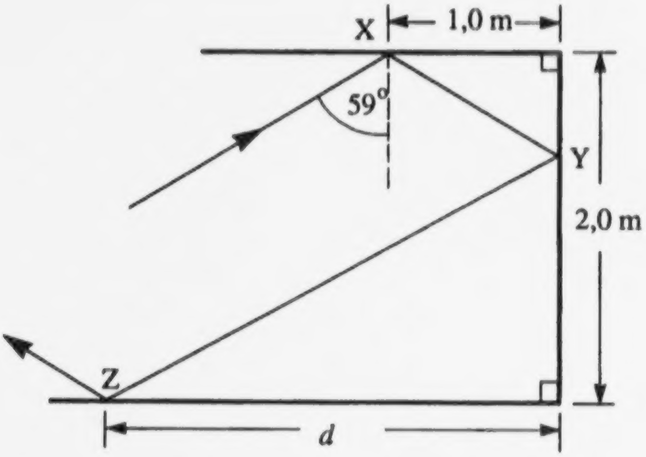
   A. I
   B. II
   C. III
   D. IV

---

3. Pour déterminer la célérité de la lumière, Huygens a utilisé des

   A. roues dentées
   B. lanternes intermittentes
   C. données astronomiques
   D. miroirs octogonaux

Utilisez l'information suivante pour répondre à la question 4.



Une lumière est incidente en X sur une surface réfléchissante et se réfléchit encore en Y et Z.

4. La distance *d* est

A. 2,5 m
B. 2,3 m
C. 1,9 m
D. 1,7 m

---

5. Si un vaisseau spatial pouvait se déplacer à 1/1500e de la célérité de la lumière, combien de temps mettrait-il pour parcourir 2,50 années-lumière? (Une année-lumière est la distance parcourue par la lumière en un an.)

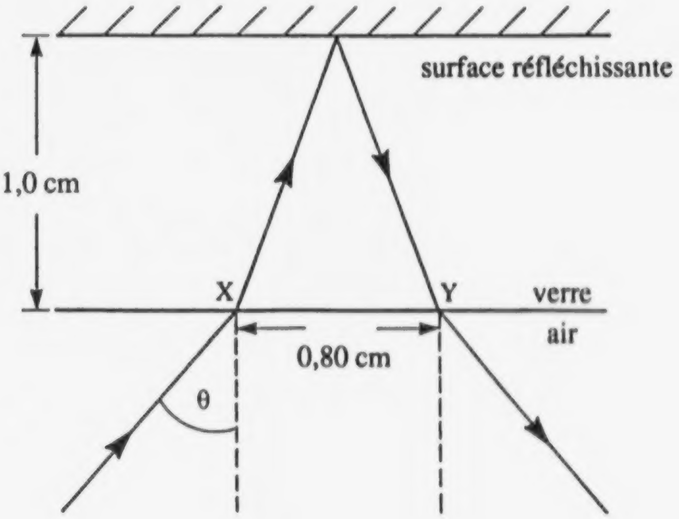
A. $3,75 \times 10^3$ s
B. $1,18 \times 10^{11}$ s
C. $8,46 \times 10^{12}$ s
D. $3,56 \times 10^{19}$ s

6. La longueur d'onde **n'est pas** un bon critère pour catégoriser la lumière parce que la longueur d'onde

A. est inversement proportionnelle à la fréquence
B. est directement proportionnelle à la vitesse
C. change pendant la diffraction
D. change pendant la réfraction

**Utilisez l'information suivante pour répondre à la question 7.**

**Réflexion dans un miroir épais**



La lumière entre dans le miroir en X et le quitte en Y.

7. Si l'indice de réfraction du verre est 1,6, l'angle d'incidence θ doit être de

   A. 40°
   B. 36°
   C. 22°
   D. 13°

---

8. La lumière passant du verre ($n$ = 1,5) dans l'eau ($n$ = 1,3)

   A. augmentera de vitesse et de longueur d'onde
   B. diminuera de vitesse et de longueur d'onde
   C. augmentera de vitesse mais diminuera de longueur d'onde
   D. diminuera de vitesse mais augmentera de longueur d'onde

9. La formation de la tache de Poisson est le résultat de

   A. la réfraction et de l'interférence destructive
   B. la diffraction et de l'interférence destructive
   C. la réfraction et de l'interférence constructive
   D. la diffraction et de l'interférence constructive

10. L'énergie de la lumière diffusée est directement proportionnelle à la quatrième puissance de la fréquence. Si la fréquence de la lumière violette est le double de celle de la lumière rouge, l'énergie de la lumière violette diffusée sera

A. 16 fois plus grande que celle de la lumière rouge diffusée
B. 8 fois plus grande que celle de la lumière rouge diffusée
C. 1/8e de fois plus grande que celle de la lumière rouge diffusée
D. 1/16e de fois plus grande que celle de la lumière rouge diffusée

Utilisez l'information suivante pour répondre à la question 11.

Énoncés sur l'éther

I. L'éther a des propriétés physiques inconsistantes.

II. L'existence de l'éther est généralement acceptée de nos jours.

III. L'existence de l'éther a été établie expérimentalement.

IV. Les propriétés de l'éther ont été nécessaires pour expliquer le modèle photonique de la lumière.

11. Le(s) énoncé(s) correspondant à l'état actuel de la théorie sur l'éther est(sont)

A. I seulement
B. III seulement
C. I et II
D. II et IV

---

Utilisez l'information suivante pour répondre à la question 12.

Faisceaux d'énergie

I. Rayons X
II. Rayons cathodiques
III. Lumière laser rouge
IV. Flux de particules alpha

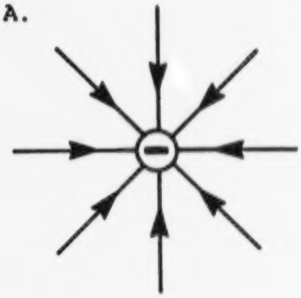
12. Quels faisceaux d'énergie peuvent être défléchis par un champ électrique?

A. I et II
B. I et III
C. II et IV seulement
D. II, III et IV

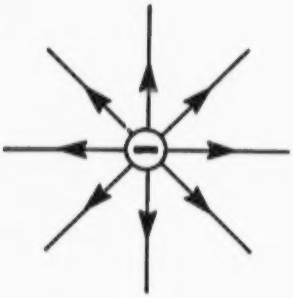
---

**13. Le champ électrique d'un électron au repos peut être le mieux représenté par**

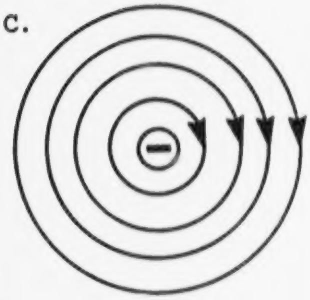
**A.**



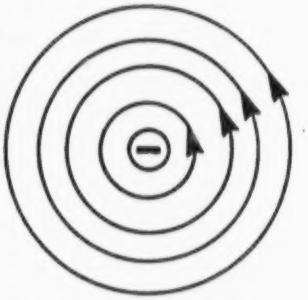
**B.**



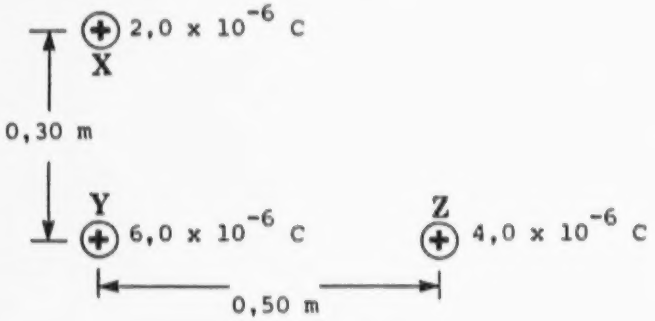
**C.**



**D.**



Utilisez l'information suivante pour répondre à la question 14.


2,0 x 10$^{-6}$ C
X
0,30 m
Y
6,0 x 10$^{-6}$ C
Z
4,0 x 10$^{-6}$ C
0,50 m

Des charges X, Y et Z, dont la grandeur est indiquée sur le diagramme, sont placées aux trois sommets d'un triangle rectangle.

14. La force sur la charge Y a une grandeur de

A. 2,1 N
B. 1,5 N
C. 1,0 N
D. 0,34 N

15. Une goutte d'huile chargée d'une masse de $1,9 \times 10^{-15}$ kg est suspendue dans un champ électrique vertical de $6,0 \times 10^{3}$ N/C. Pour obtenir l'équilibre, la charge sur la goutte d'huile doit être de

A. $3,2 \times 10^{-19}$ C
B. $3,1 \times 10^{-18}$ C
C. $1,9 \times 10^{-14}$ C
D. $1,1 \times 10^{-11}$ C

16. Une balle de sureau P positivement chargée attirera une balle de sureau Q neutre. Cette attraction se produit parce que la charge négative induite sur Q est

A. plus grande que la charge positive induite sur Q
B. plus petite que la charge positive induite sur Q
C. plus près de P que la charge positive induite sur Q
D. plus loin de P que la charge positive induite sur Q

17. Deux corps chargés se repoussent avec une force de $F$. La charge sur l'un est doublée, et la charge sur l'autre est augmentée d'un facteur de 7/3. Si la distance entre elles est ensuite triplée, la force qui en résultera finalement sera de

A. $42F$
B. $14F/3$
C. $14F/27$
D. $F/9$

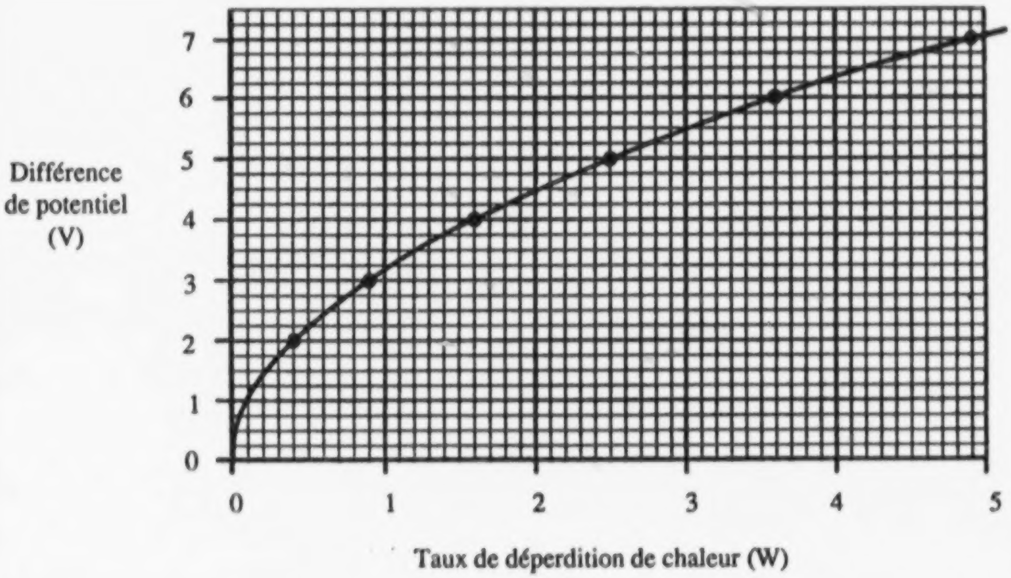
18. Quand il faut $7,0 \times 10^{-15}$ J de travail pour déplacer un électron d'une plaque chargée à une autre, la différence de potentiel entre les plaques est de

A. $4,4 \times 10^{4}$ V
B. $2,3 \times 10^{-19}$ V
C. $1,6 \times 10^{-19}$ V
D. $1,1 \times 10^{-33}$ V

19. Quand la loi d'Ohm s'applique, le courant varie

A. directement comme la tension et directement comme la résistance
B. directement comme la tension et inversement comme la résistance
C. inversement comme la tension et directement comme la résistance
D. inversement comme la tension et inversement comme la résistance

**Utilisez l'information suivante pour répondre aux questions 20 et 21.**



**Le graphique représente la différence de potentiel comme fonction du taux de déperdition de chaleur pour une résistance fixe.**

20. La grandeur de la résistance est

    A. 1,6 Ω
    B. 2,5 Ω
    C. 6,4 Ω
    D. 10 Ω

21. Quel est le courant passant par la résistance quand la différence de potentiel est de 6,0 V?

    A. 0,60 A
    B. 1,7 A
    C. 3,6 A
    D. 22 A

---

22. La force magnétique subie par une particule chargée se déplaçant dans tout champ magnétique est

    A. toujours supérieure à zéro
    B. constante quelle que soit la direction du champ
    C. maximum quand la célérité est parallèle au champ
    D. maximum quand la célérité est perpendiculaire au champ

23. La force du champ magnétique se mesure en tesla (T). Un ensemble d'unités équivalant à 1 T est 1 N/(A·m). Un autre ensemble d'unités équivalant à 1 T est

A. 1 J/C
B. 1 (N·C)/(m·s)
C. 1 (N·s)/(C·m)
D. 1 (kg·m)/(C·s)

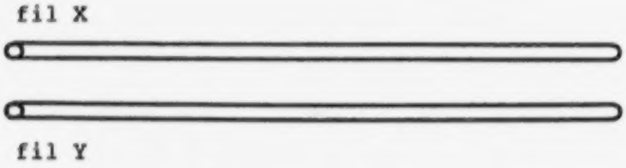
24. Un faisceau de particules alpha est dirigé avec une vitesse horizontale de 2,0 x $10^7$ m/s dans un spectromètre de masse qui a la force d'un champ magnétique vertical de 3,0 T. Quel est le rayon de la trajectoire du faisceau dans le spectromètre?

A. 0,072 m
B. 0,14 m
C. 0,28 m
D. 7,2 m

25. Si une particule chargée se propageant à 3,00 x $10^6$ m/s perpendiculairement à un champ magnétique de 0,125 T subit une force de déflexion de 1,20 x $10^{-13}$ N, cette particule peut être

A. un proton
B. un neutron
C. un électron
D. une particule alpha

Utilisez l'information suivante pour répondre à la question 26.



Deux fils parallèles X et Y transportent des courants électriques.

26. Si la direction du courant dans le fil X est inversée,

A. le courant dans le fil Y sera inversé
B. seule la force magnétique sur le fil X sera inversée
C. seule la force magnétique sur le fil Y sera inversée
D. les forces magnétiques sur les deux fils X et Y seront inversées

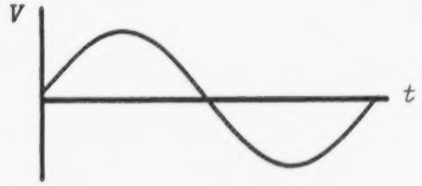
27. Sous vide, la vitesse de toutes les formes de radiation électromagnétique est

A. égale à la célérité de la lumière
B. la même que dans tous les autres milieux
C. inversement proportionnelle à la fréquence de la radiation
D. inversement proportionnelle à la longueur d'onde de la radiation

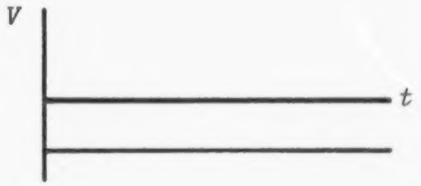
Utilisez l'information suivante pour répondre à la question 28.

Un transformateur induit un courant dans la spire secondaire à cause du champ magnétique produit par le courant dans la spire primaire. Les graphiques représentent les tensions appliquées à la spire primaire d'un transformateur:

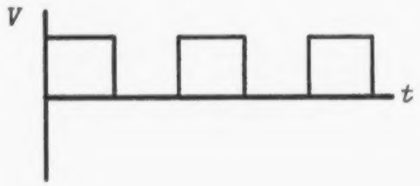
I.



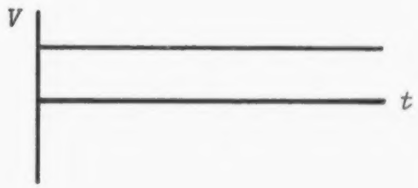
II.



III.



IV.



28. Quels signaux causeraient l'induction d'un courant dans la spire secondaire?

A. I et III
B. I et IV
C. II et III
D. III et IV

Utilisez l'information suivante pour répondre à la question 29.

**Descriptions possibles des ondes lumineuses**

I. Des ondes transversales, la direction du champ magnétique faisant un angle de 180° avec la direction du champ électrique

II. Des ondes transversales, la direction du champ magnétique faisant un angle de 90° avec la direction du champ électrique

III. Des ondes longitudinales, la direction du champ magnétique faisant un angle de 180° avec la direction du champ électrique

IV. Des ondes longitudinales, la direction du champ magnétique faisant un angle de 90° avec la direction du champ électrique

29. L'énoncé qui décrit correctement les ondes lumineuses est

A. I
B. II
C. III
D. IV

---

30. Un courant de 0,60 A traverse une solution de sulfate de cuivre(II) dans un électrolyseur. Le temps nécessaire pour que 0,45 g de cuivre de la solution $Cu^{2+}$ se dépose est calculé comme étant

A. 2,3 s
B. 5,0 s
C. $2,3 \times 10^3$ s
D. $5,0 \times 10^3$ s

31. La valeur expérimentale de *q/m* pour un proton est $9,6 \times 10^7$ C/kg. La valeur de *q/m* pour une particule alpha est

A. $1,9 \times 10^8$ C/kg
B. $9,6 \times 10^7$ C/kg
C. $4,8 \times 10^7$ C/kg
D. $2,4 \times 10^7$ C/kg

32. Un champ électrique de $4,3 \times 10^4$ N/C et un champ magnétique perpendiculaire de $1,3 \times 10^{-3}$ T sont appliqués simultanément à un faisceau d'électrons. Si le faisceau n'est pas défléchi, la vitesse des électrons doit être de

A. $5,6 \times 10^{-11}$ m/s
B. $3,0 \times 10^{-8}$ m/s
C. $1,6 \times 10^4$ m/s
D. $3,3 \times 10^7$ m/s

33. Pour démontrer que les charges électriques dans la nature se composent de multiples entiers de la plus petite charge, Millikan a utilisé

A. trois forces: gravitationnelle, magnétique et électrique
B. deux forces: gravitationnelle et électrique
C. deux forces: magnétique et électrique
D. seulement la force électrique

34. La théorie de Bohr explique **le mieux**

A. l'effet photoélectrique
B. les intensités des raies du spectre
C. les spectres d'émission et d'absorption de l'hydrogène
D. les effets électrique et magnétique des raies du spectre

Utilisez l'information suivante pour répondre aux questions 35 et 36.

Observations dans des expériences photoélectriques

I. La grandeur du courant augmente.
II. La grandeur du courant diminue.
III. La grandeur du courant est constante.
IV. L'énergie des photoélectrons augmente.
V. L'énergie des photoélectrons diminue.
VI. L'énergie des photoélectrons est constante.

35. Dans une expérience photoélectrique, un élève augmente l'intensité de la lumière incidente tout en maintenant une fréquence constante. Quels sont les effets sur la grandeur du courant photoélectrique et sur l'énergie des photoélectrons?

A. I et IV
B. I et VI
C. III et IV
D. III et VI

36. Dans une expérience photoélectrique, une élève diminue l'intensité de la lumière incidente tout en en augmentant la fréquence. Quels sont les effets sur la grandeur du courant photoélectrique et sur l'énergie des photoélectrons?

A. II et IV
B. II et V
C. III et IV
D. III et VI

37. Une lumière d'une fréquence de 8,50 x $10^{14}$ Hz frappe une surface qui a une fonction de travail de 3,00 eV. L'énergie cinétique maximum d'un photoélectron émis est

A. 5,6 x $10^{-19}$ J
B. 4,5 x $10^{-19}$ J
C. 4,0 x $10^{-19}$ J
D. 8,4 x $10^{-20}$ J

38. La tension d'arrêt pour les photoélectrons d'une cellule photoélectrique sert à déterminer leur

A. masse
B. énergie
C. quantité de mouvement
D. charge massique

39. Un électron fait une transition du quatrième niveau d'énergie de l'atome d'hydrogène à l'état fondamental. La longueur d'onde de la radiation émise est de

A. 9,7 x $10^{-8}$ m
B. 1,2 x $10^{-7}$ m
C. 3,6 x $10^{-7}$ m
D. 4,9 x $10^{-7}$ m

40. Le rayon de la quatrième orbite de Bohr de l'atome d'hydrogène est de

A. 3,31 x $10^{-12}$ m
B. 1,32 x $10^{-11}$ m
C. 2,12 x $10^{-10}$ m
D. 8,46 x $10^{-10}$ m

41. L'énergie nécessaire pour arracher l'électron externe d'un atome de sodium est 5,1 eV. Si un électron qui a une vitesse de 1,5 x $10^{6}$ m/s frappe et ionise un atome de sodium, l'énergie cinétique maximum possible de l'électron incident après la collision sera de

A. 1,3 eV
B. 5,1 eV
C. 6,4 eV
D. 11,5 eV

42. Une insuffisance du modèle de l'atome de Bohr est qu'on ne peut pas

A. calculer de rayon pour l'hydrogène
B. calculer l'énergie d'un électron pour l'hydrogène
C. prédire exactement le spectre de l'hydrogène
D. prédire exactement l'intensité des raies du spectre de l'hydrogène

Utilisez l'information suivante pour répondre à la question 43.

Énoncés à partir de divers modèles de l'atome

I. L'atome est neutre.
II. La plus grande partie du volume est de l'espace vide.
III. Un liquide négatif crée la plus grande partie du volume.
IV. Les charges positives ont une beaucoup plus grande masse que les charges négatives.

43. Quels énoncés sont compatibles avec la compréhension actuelle de l'atome?

A. I et IV seulement
B. III et IV seulement
C. I, II et IV
D. II, III et IV

---

44. Quand la masse au repos d'un objet sera-t-elle plus grande que sa masse relativiste?

A. Jamais
B. Seulement aux petites vitesses
C. Seulement aux grandes vitesses
D. Seulement à la vitesse de la lumière

45. La différence totale de potentiel par laquelle un proton accéléré du repos doit passer pour acquérir une masse relativiste de $1,72 \times 10^{-27}$ kg est

A. $9,7 \times 10^{8}$ V
B. $9,4 \times 10^{8}$ V
C. $1,4 \times 10^{8}$ V
D. $2,8 \times 10^{7}$ V

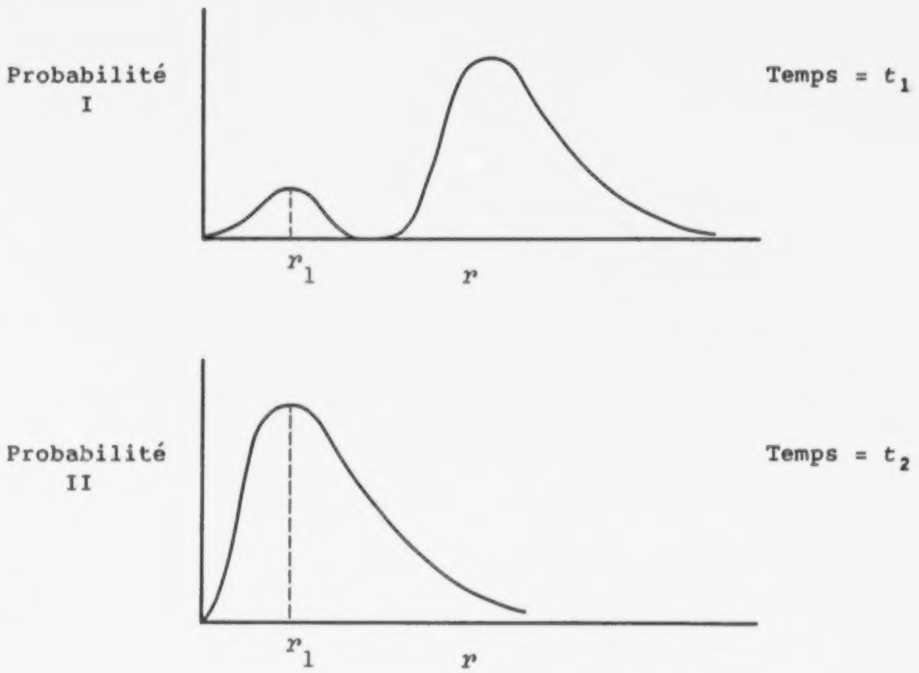
46. La quantité de mouvement d'un photon de rayon X est directement proportionnelle à sa

A. masse
B. célérité
C. fréquence
D. longueur d'onde

47. Une particule alpha et un électron se déplacent à la même vitesse. La longueur d'onde de De Broglie pour la particule alpha est

A. plus longue à cause de la plus grande masse de la particule alpha
B. plus courte à cause de la plus grande masse de la particule alpha
C. plus longue à cause de la plus grande charge de la particule alpha
D. plus courte à cause de la plus grande charge de la particule alpha

**Utilisez l'information suivante pour répondre à la question 48.**



Les deux diagrammes représentent la probabilité de distribution de l'électron pour un atome d'hydrogène à des temps différents. La probabilité II se trouve plus tard que la probabilité I.

48. Si on compare les états de l'atome d'hydrogène aux temps $t_1$ and $t_2$, le changement qui s'est produit dans l'atome est

A. que la valeur moyenne de $r$ a augmenté
B. que la probabilité de trouver l'électron à $r = 0$ a augmenté
C. qu'un électron est passé de l'état fondamental à un état excité
D. qu'un électron est passé d'un état excité à l'état fondamental

49. Le principe d'incertitude d'Heisenberg énonce que plus nous connaissons la position d'une particule avec exactitude, moins nous connaissons avec exactitude

A. sa taille
B. sa charge
C. son amplitude
D. sa quantité de mouvement

**VOUS AVEZ FINI LA PARTIE DES QUESTIONS À CHOIX MULTIPLES DE L'EXAMEN.
PASSEZ DIRECTEMENT À LA PARTIE B.**

# PARTIE B

**INSTRUCTIONS**

Il y a quatre questions écrites pour un total de 21 points dans cette partie de l'examen. Tous les nombres utilisés dans les questions doivent être considérés comme étant le résultat de mesures.

Écrivez toutes vos réponses aussi nettement que possible dans le livret d'examen.

Vos solutions **doivent indiquer** toutes les explications, formules et calculs pertinents. On ne donnera tous les points **qu'aux solutions indiquant** toutes les explications, formules et calculs pertinents.

Toutes les réponses numériques doivent être données avec le nombre approprié de chiffres significatifs.

NOTE: Les pages perforées à l'arrière du livret peuvent être détachées et utilisées pour le brouillon. On ne donnera **pas de points** pour le travail fait sur les feuilles à détacher.

COMMENCEZ IMMÉDIATEMENT LA PARTIE B.

À L'USAGE
EXCLUSIF
DU SERVICE

(4 points)

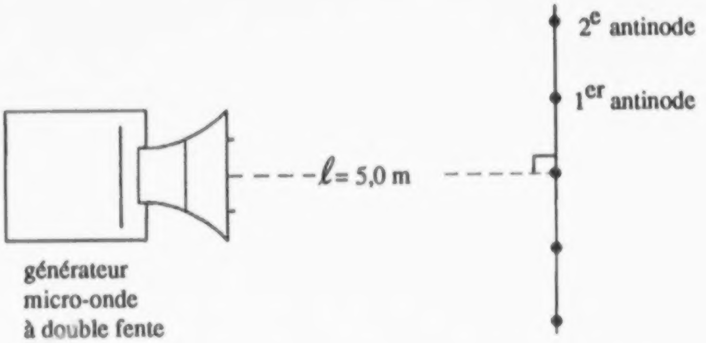
1. La masse de Saturne est 94,8 fois plus grande que celle de la Terre, et son rayon est 9,45 fois plus grand que celui de la Terre. Si un objet pèse 155 N sur la Terre, que pèsera-t-il sur Saturne?
(Rappel: On enlèvera des points si les étapes de physique pour les calculs ne sont pas indiquées explicitement.)

À L'USAGE
EXCLUSIF
DU SERVICE

(5 points)

2. L'énergie cinétique relativiste d'un proton se déplaçant à $2{,}76 \times 10^8$ m/s ($0{,}920c$) est $K_1$. Un calcul utilisant la formule newtonienne classique pour l'énergie cinétique donne le résultat de $K_2$. Calculez le rapport $K_1/K_2$. Inscrivez votre réponse avec trois chiffres significatifs.

3. Un générateur micro-onde d'une fréquence variable $f$ est utilisé pour mesurer l'espacement $d$ entre deux fentes.


2$^{e}$ antinode
1$^{er}$ antinode
$\ell$ = 5,0 m
générateur
micro-onde
à double fente

La distance $x$ entre le premier antinode (signal maximum) et le maximum central à sept fréquences différentes est donnée sur le tableau ci-dessous:

| $f$ ($10^{11}$ Hz) | $x$ (cm) |
|---|---|
| 4,0 | 3,6 |
| 3,0 | 4,8 |
| 2,0 | 7,4 |
| 1,3 | 12,0 |
| 1,0 | 14,2 |
| 0,75 | 20,4 |
| 0,60 | 24,6 |

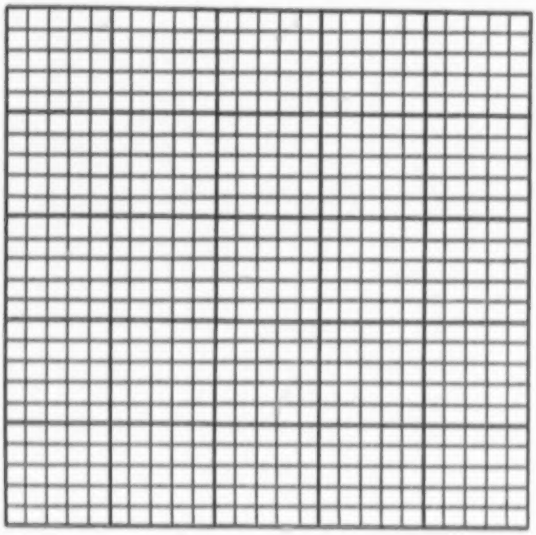
(2 points)

a. Tracez une courbe de la distance $x$ comme fonction de la fréquence $f$, avec la variable manipulée sur l'axe horizontal.

**À L'USAGE EXCLUSIF DU SERVICE**

b. Reportez les données sur le graphique de façon à obtenir une droite passant par l'origine. Légendez clairement les variables tracées. Vous pouvez utiliser la valeur du livret de données pour la vitesse de la lumière.

(3 points)



c. Utilisez une procédure appropriée pour faire la moyenne afin d'évaluer la **meilleure** valeur pour l'espacement *d* entre les fentes. Vous pouvez utiliser la valeur du livret de données pour la vitesse de la lumière. Inscrivez votre réponse avec deux chiffres significatifs.

(2 points)

4. Le modèle ondulatoire classique de la lumière et le modèle particulaire classique (newtonien) de la lumière essaient tous les deux d'expliquer la réfraction.

(3 points)

a. Comparez et contrastez les deux explications du comportement de la lumière à son passage de l'air dans l'eau.

Ressemblances:

Différence (avec des détails précis):

**À L'USAGE EXCLUSIF DU SERVICE**

b. Identifiez une preuve expérimentale à l'appui **d'un seul** des modèles classiques de la lumière et dites lequel. Votre preuve **n'a pas** besoin de se limiter à la réfraction. (1 point)

c. Des expériences ultérieures ont produit des résultats qui ont contredit **les deux** modèles classiques de la lumière. Nommez une de ces expériences et indiquez-en le résultat. (1 point)

**VOUS AVEZ MAINTENANT FINI L'EXAMEN. S'IL VOUS RESTE DU TEMPS, VOUS VOUDREZ PEUT-ÊTRE REVOIR VOS RÉPONSES POUR LES VÉRIFIER.**

FEUILLE À DÉTACHER

(ON NE DONNERA PAS DE POINTS POUR LE TRAVAIL FAIT SUR CETTE PAGE)

PLIER ET DÉTACHER LE LONG DE LA PERFORATION

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M1 ☐ M2 ☐ M3 ☐ M4 ☐

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PHYSIQUE 30

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PHYSIQUE 30

# GRADE 12
# DIPLOMA EXAMINATION

## Social Studies 30

January 1990

Alberta
EDUCATION

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# GRADE 12 DIPLOMA EXAMINATION
# SOCIAL STUDIES 30

## GENERAL INSTRUCTIONS

YOU HAVE 2½ HOURS TO COMPLETE THIS EXAMINATION. BUDGET YOUR TIME CAREFULLY.

PART A consists of multiple-choice questions worth 70% of the total mark.

PART B consists of a written-response section worth 30% of the total mark.

IT IS RECOMMENDED THAT YOU READ THE WRITTEN-RESPONSE QUESTIONS IN PART B BEFORE BEGINNING THE EXAMINATION. IDEAS APPEARING IN THE MULTIPLE-CHOICE QUESTIONS MAY ASSIST YOU IN COMPOSING YOUR ESSAY.

## INSTRUCTIONS FOR PART A: MULTIPLE-CHOICE QUESTIONS

- use an HB pencil
- write your name and other information requested on the separate answer sheet provided
- mark all your answers on the separate answer sheet
- erase your first mark completely if you wish to change an answer

**Example**

The capital city of Canada is

**A.** Vancouver
**B.** Winnipeg
**C.** Ottawa
**D.** Montreal

**Answer Sheet**

A B C D
① ② ● ④

The presiding examiner will collect your answer sheet and examination booklet.

**DO NOT FOLD EITHER THE ANSWER SHEET OR THE EXAMINATION BOOKLET.**

**JANUARY 1990**

1. One of the **most** common criticisms of a market-oriented economy is its

   **A.** lack of flexibility in production
   **B.** lack of responsiveness to consumer demand
   **C.** fluctuating business cycle of boom and bust
   **D.** inefficiencies in bureaucratic organization

2. In an economic system where planning is decentralized, **most** production decisions are made by

   **A.** consumer lobbies
   **B.** service industries
   **C.** government agencies
   **D.** individual businesses

3. In a model dictatorship, the primary function of the media is to

   **A.** gauge public opinion to determine party policies
   **B.** promote party propaganda and indoctrinate the citizenry
   **C.** stifle the growth of opposition parties and dissident groups
   **D.** channel public complaints and to act as the unofficial opposition

4. Which point of view represents a belief in the importance of collectivism rather than individualism?

   **A.** Canadian society would be healthier if we stressed competition more and regulation less.

   **B.** The development of a nation's natural resources should be in the hands of private enterprise.

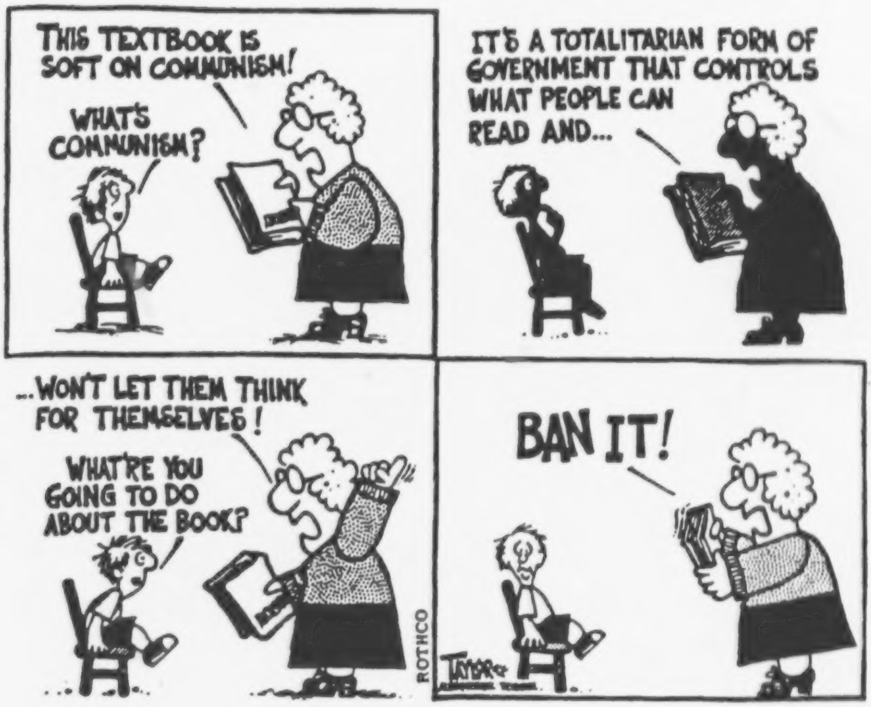
   **C.** The government must ensure that each citizen's basic right to a decent standard of living is upheld.

   **D.** Provincial governments should grant greater tax concessions to oil companies rather than increase royalties.

5. Fascism's answer to the problem of class conflict is to

   **A.** subordinate differences to the goals of the state
   **B.** provoke dissension and to destabilize the state
   **C.** attempt to satisfy some demands from each class
   **D.** eliminate all classes except the working class

**Use the following cartoon to answer question 6.**


THIS TEXTBOOK IS SOFT ON COMMUNISM!
WHAT'S COMMUNISM?
IT'S A TOTALITARIAN FORM OF GOVERNMENT THAT CONTROLS WHAT PEOPLE CAN READ AND...
...WON'T LET THEM THINK FOR THEMSELVES!
WHAT'RE YOU GOING TO DO ABOUT THE BOOK?
BAN IT!
ROTHCO
TAYLOR

— from *Censorship*

6. The humor in the cartoon is based on one speaker

**A.** showing a bias against the communist ideology
**B.** criticizing something she knows nothing about
**C.** advocating an action that she has just criticized
**D.** showing a bias toward the democratic political system

---

7. "The glory of free nations is that their peoples may question, may disagree, may choose new leaders."
This opinion places highest priority on

**A.** citizenship
**B.** social equality
**C.** self-advancement
**D.** personal liberty

**8.** A common feature of the governments of both Adolf Hitler and Joseph Stalin was the

**A.** nationalization of all major means of production
**B.** use of independent people's courts to render justice
**C.** justification of totalitarian rule based on racial superiority
**D.** elimination of political opponents through internal party purges

**Use the following passage to answer question 9.**

> Numerous opinion surveys clearly indicate the majority of people believe that, as individuals, they have very little political power. The feeling that the government is big, remote, and too complex for comprehension and that the individual, therefore, does not have much influence, is prevalent in all parts of the country and in all socioeconomic groups, although it is most frequently found, as might be expected, in less prosperous areas and among those near or below the poverty line.
>
> — from *Teaching Canada for the 80s*

**9.** The analysis of which statistic would be **most** useful in proving the validity of the author's statements?

**A.** The rate of increase in the number of eligible voters
**B.** The redistribution of constituencies before an election
**C.** The voter turnout at elections of different levels of government
**D.** The distribution of election results according to political party

---

**10.** Which of the following socialist groups would **most** likely oppose the position that economic choices should be based entirely on the principles of collectivism?

**A.** The Stalinist party in Albania
**B.** The Communist party in Romania
**C.** The Marxist-Leninist party in Canada
**D.** The democratic socialist party in Sweden

**11.** Executive accountability is **best** illustrated by the practice in

**A.** the United States of having Supreme Court appointments made by the president

**B.** Canada of having the House of Commons control the passage of legislation proposed by the cabinet

**C.** Great Britain of having Parliament directly control the line of succession to the throne

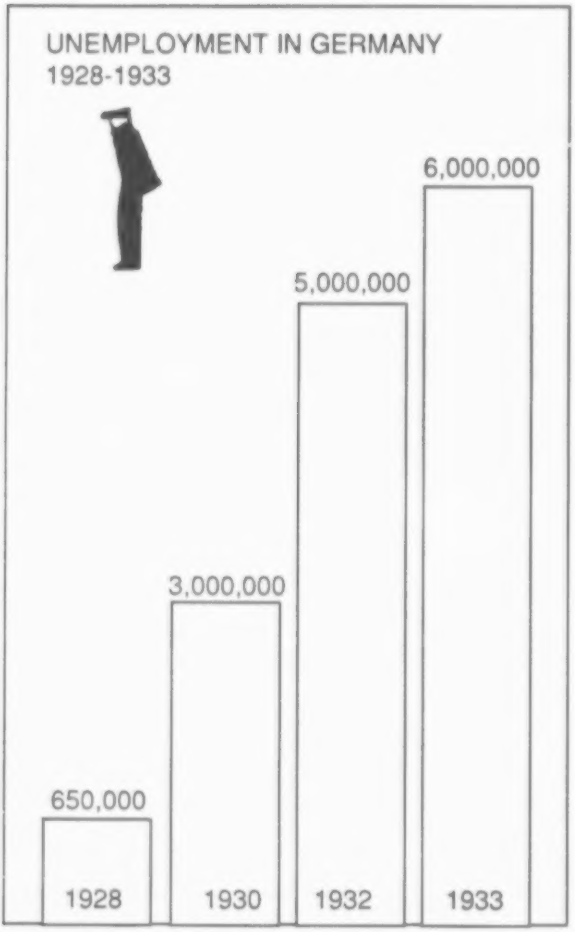
**D.** the Soviet Union of having members of the Central Committee selected by the Politburo

**Use the following sources to answer questions 12 and 13.**

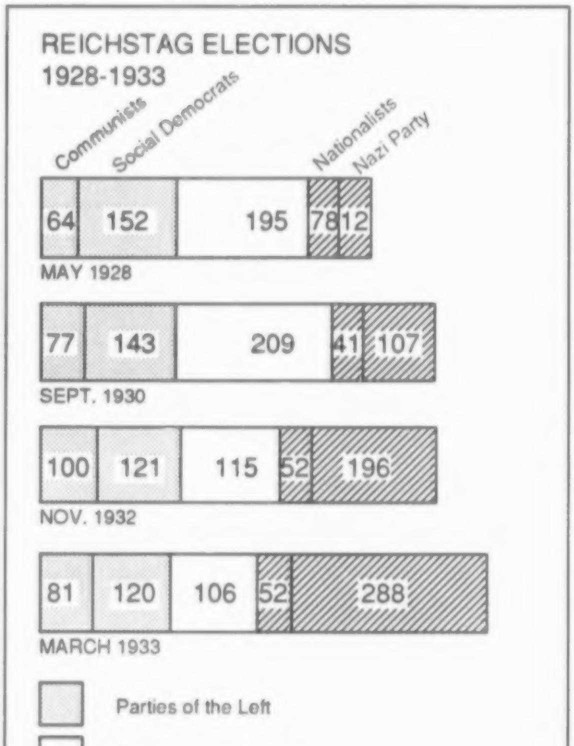
SOURCE I

> Democracy exists so that conditions might prevail whereby the common man is better off than he would be under any other form of government. Democracy, then, is in danger whenever there is a larger proportion of insecure families or alienated citizenry in the country. Democracy is weakened whenever those in power attempt to suppress freedoms of the press or speech or when minority groups who cannot control elections refuse to obey laws which have been made by the majority. Germany, in 1938, says that only under a dictatorship could a government take strong, unified action; that in a democracy, inefficiency and a waste of valuable time occurs in talk and discussion.
>
> — adapted from *World Affairs*, November 1938

SOURCE II



SOURCE III



— sources II and III adapted from *The Rise of Totalitarian States*

**12.** It can be inferred from an examination of the sources that

**A.** political instability often leads to economic chaos and anarchy

**B.** high unemployment causes people to choose established, centralist parties

**C.** fascism poses a threat to democratic institutions in times of economic instability

**D.** suppression of democratic freedoms ensures a fascist victory during elections

**13.** Considering the unemployment figures in Source II, which statement from Source I **best** explains the election results in Source III?

**A.** "Democracy . . . is in danger whenever there is a larger proportion of insecure families or alienated citizenry in the country."

**B.** "Democracy exists so that conditions might prevail whereby the common man is better off than he would be under any other form of government."

**C.** "Germany . . . says that only under a dictatorship could a government take strong, unified action; that in a democracy, inefficiency and a waste of valuable time occurs in talk and discussion."

**D.** "Democracy is weakened whenever those in power attempt to suppress freedoms . . . or when minority groups who cannot control elections refuse to obey laws which have been made by the majority."

---

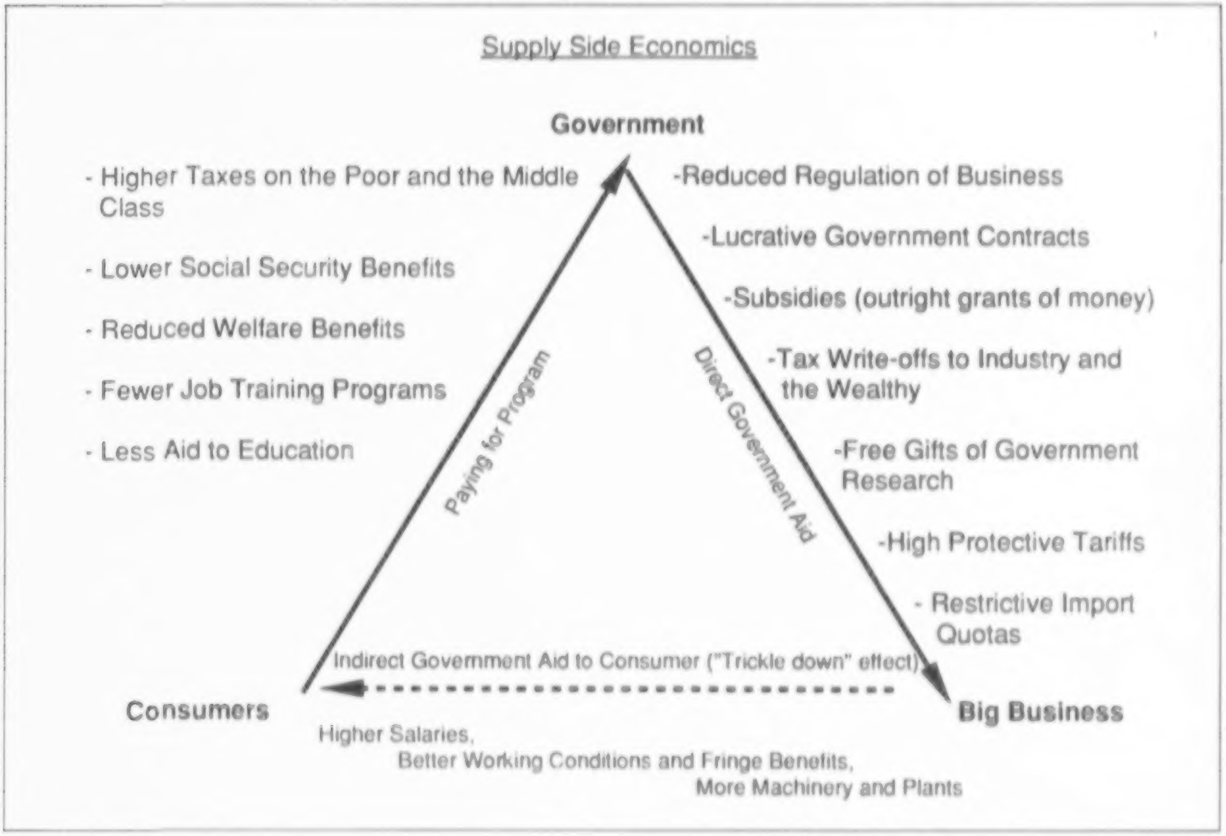
**14.** Governments of countries with mixed economies have traditionally attempted to control inflation by increasing

**A.** interest rates
**B.** the money supply
**C.** income tax exemptions
**D.** government expenditures

**15.** The role of government planners in a model public enterprise system would be replaced in a model private enterprise system by the

**A.** executives of multinational corporations
**B.** leaders of state-approved trade unions
**C.** dictatorship of the proletariat
**D.** law of supply and demand

**Use the following diagram to answer questions 16 to 19.**


Supply Side Economics
Government
- Higher Taxes on the Poor and the Middle Class
- Lower Social Security Benefits
- Reduced Welfare Benefits
- Fewer Job Training Programs
- Less Aid to Education
Paying for Program
-Reduced Regulation of Business
-Lucrative Government Contracts
-Subsidies (outright grants of money)
-Tax Write-offs to Industry and the Wealthy
-Free Gifts of Government Research
-High Protective Tariffs
- Restrictive Import Quotas
Direct Government Aid
Indirect Government Aid to Consumer ("Trickle down" effect)
Consumers
Big Business
Higher Salaries,
Better Working Conditions and Fringe Benefits,
More Machinery and Plants

— from *Political Ideologies: Their Origins and Impact*

**16.** What issue does the economic policy described in the diagram address?

**A.** Should governments encourage growth in their economies through assistance to producers?

**B.** Should governments give direct government aid to big business to control inflation?

**C.** Should governments reduce welfare benefits to encourage economic co-operation?

**D.** Should governments increase taxes on producers to reduce unemployment?

**17.** In the case of a recession, a government following the economic policy described in the diagram would likely

**A.** increase unemployment insurance payments
**B.** increase interest rates to reduce inflation
**C.** reduce taxes on producers to stimulate investment
**D.** reduce subsidies to producers to decrease budget deficits

**18.** An appropriate action for a government advocating the economic policy described in the diagram would be

**A.** financial grants to a new telecommunications industry
**B.** stringent standards on environmental pollution controls
**C.** a decrease in import taxes charged on foreign automobiles
**D.** support for retraining labor for new high-tech occupations

**19.** A major assumption underlying supply side economics, as illustrated by the diagram, is that

**A.** a successful private sector will result in increased benefits for the entire economy

**B.** direct government aid to producers will result in increased government welfare benefits

**C.** a successful private sector will result in a large gap between rich and poor

**D.** direct government aid to producers will result in increased private contributions to charity

---

**20.** A leader of a fascist political and economic system would **most** strongly uphold the values of

**A.** co-operation and understanding
**B.** initiative and individualism
**C.** freedom and prosperity
**D.** service and duty

**21.** Which of the following actions by government represents a technique of direct democracy?

**A.** Establishing conscription
**B.** Invoking parliamentary closure
**C.** Holding referendums or plebiscites
**D.** Maintaining representation by population

**22.** According to the principle of the "invisible hand," the profit motive directs businesspeople to

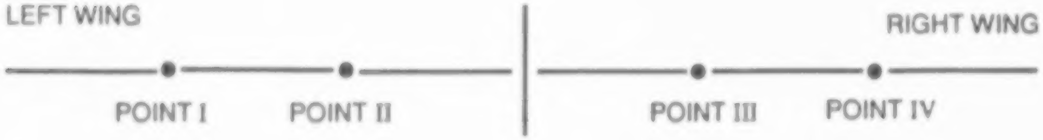
**A.** maintain their dominant economic position
**B.** serve the collective good while pursuing personal gain
**C.** pursue individual concerns while ignoring collective interests
**D.** serve collective interests at the expense of individual interests

**Use the following information to answer questions 23 to 25.**

An individual holds the following political and economic views:

- Citizens should follow the will of the group.
- Significant change is required to bring society back to its neglected traditions and values.
- Economic activity must reflect national goals.
- All people must accept that a basic and natural inequality exists among races and individuals.

**23.** These views would be found at what point on the following political spectrum?



**A.** POINT I
**B.** POINT II
**C.** POINT III
**D.** POINT IV

**24.** The source that is **most** consistent with the views held by the above individual is

**A.** *On Liberty*
**B.** *Mein Kampf*
**C.** *Das Kapital*
**D.** *The Wealth of Nations*

**25.** This individual would **most** favor a system based on

**A.** anarchist principles
**B.** public enterprise principles
**C.** dictatorship as practised in Italy during the 1930s
**D.** democratic capitalism as practised in the U.S.A. during the 1920s

**Use the following passage to answer questions 26 and 27.**

> In the last months of 1919 and the early ones of 1920, a third of Italy was in the hands of the Communists. Their administration was marked by violence and waste of public money. They imposed themselves more and more on the life of the people. They made use of attacks, strikes, blackmail, and the takeover of factories and land. Those who were still loyal to the Italian nation, therefore, had no choice but to protect themselves by force of arms.
>
> — from *The Rise of Totalitarian States*

**26.** From the passage, one could conclude that the speaker is **most** likely a supporter of

**A.** radical Marxism
**B.** anarchist causes
**C.** proletarian revolution
**D.** counterrevolutionary forces

**27.** To justify his position, the speaker is primarily appealing to the principle of

**A.** personal material welfare
**B.** democratic practice
**C.** patriotic duty
**D.** humanitarianism

---

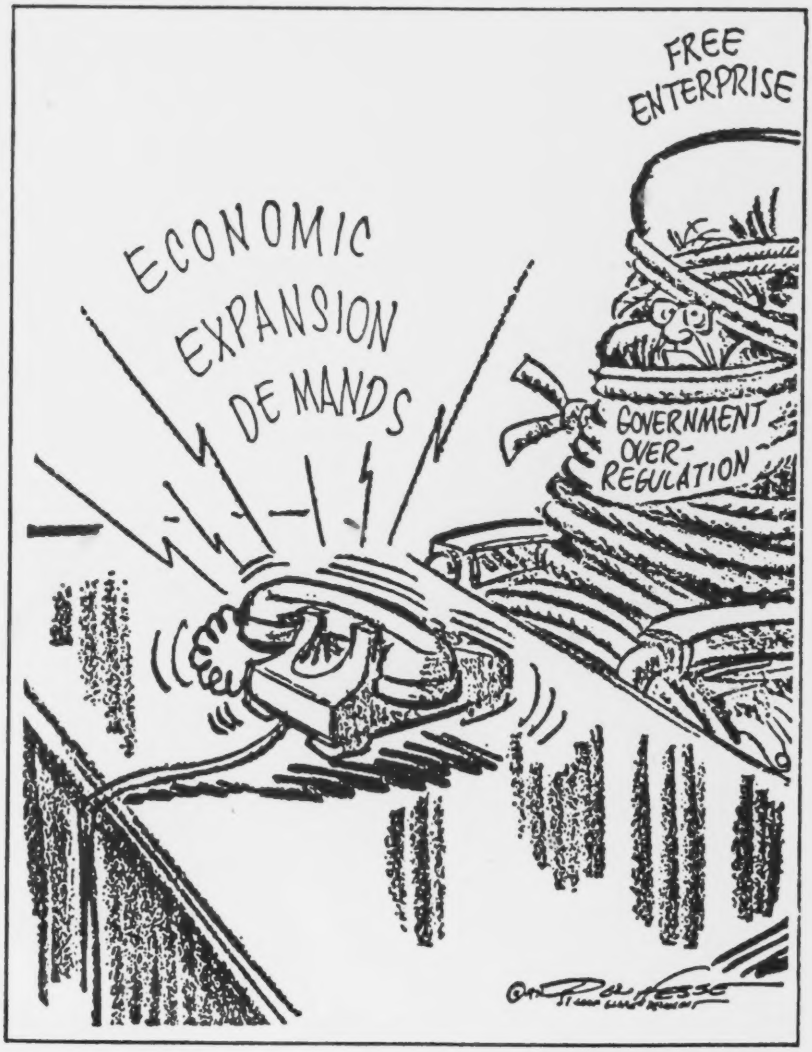
**28.** Socialism as a major political and economic force has its historical origins primarily in the

**A.** rise of the nation state
**B.** abuses of industrial capitalism
**C.** success of the Bolshevik Revolution
**D.** disintegration of Europe's colonial empires

**29.** "Experience shows that when the executive and legislative branches of government become rivals for power, decisive political action is impossible."
This position argues against

**A.** individual rights
**B.** separation of powers
**C.** democratic government
**D.** autocratic government

**Use the following cartoon to answer questions 30 to 32.**


FREE ENTERPRISE
ECONOMIC EXPANSION DEMANDS
GOVERNMENT OVER-REGULATION

**30.** According to the cartoon, government regulation has reduced

**A.** capital investment
**B.** equality of incomes
**C.** demand for consumer goods
**D.** demand for government services

**31.** The cartoon implies a bias in favor of which pair of values?

**A.** Equality and generosity
**B.** Initiative and laissez-faire
**C.** Economic stability and conformity
**D.** Economic traditions and usefulness

**32.** Which of the following political and economic systems would the cartoonist **most** likely support?

**A.** Fascism
**B.** Communism
**C.** Democratic socialism
**D.** Democratic capitalism

---

**33.** A major difference between the Canadian and Swedish systems of government is the

**A.** use of a secret ballot to elect representatives
**B.** allocation of seats following a general election
**C.** responsibility of the cabinet to the legislative branch of government
**D.** tradition of constitutional and parliamentary restraints on royal power

**34.** Both Benito Mussolini and Adolf Hitler achieved political power by

**A.** using the might of the armed forces
**B.** seizing control through violent revolution
**C.** manipulating and intimidating democratic systems
**D.** waiting for wars to occur and then taking over through emergency legislation

**35.** In Canada, the idea of cabinet and caucus solidarity supports the belief that elected representatives should act as

**A.** delegates and vote the way they are directed to by their constituents

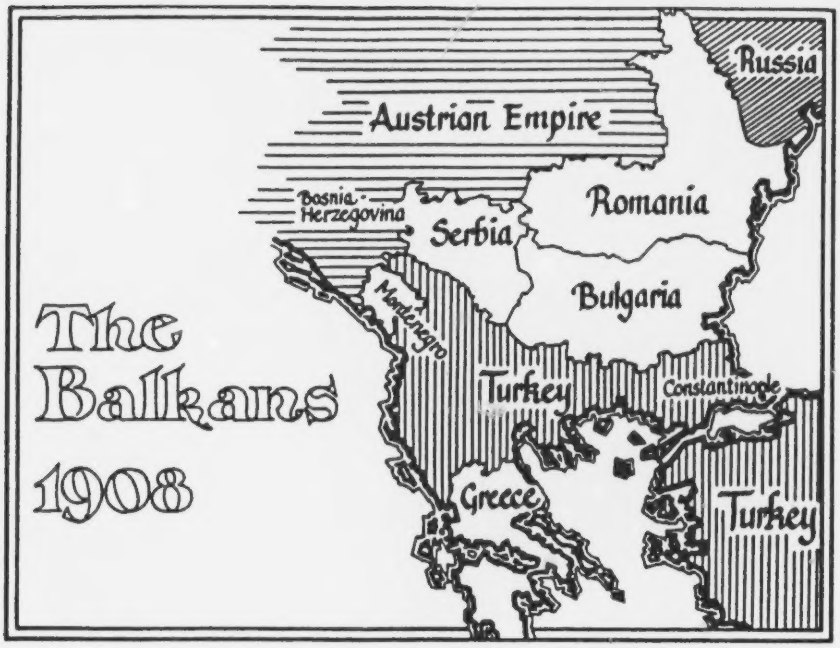
**B.** spokespersons for their constituents but decide each issue on its own merits

**C.** agents for constituent concerns and place these interests above all others

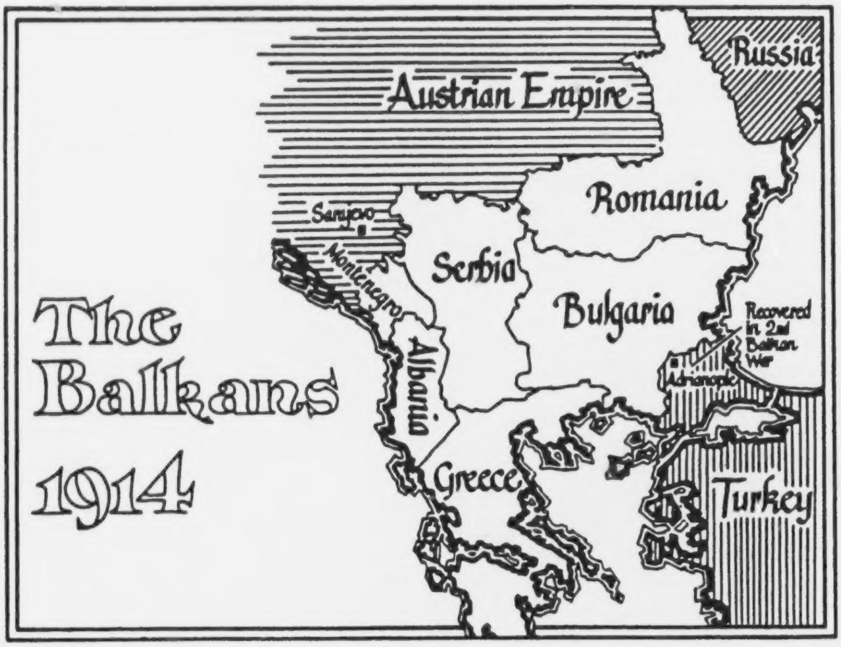
**D.** party members and remain united behind a party's position and its leadership on all issues

**Use the following maps to answer questions 36 and 37.**

MAP 1


Russia
Austrian Empire
Bosnia-Herzegovina
Serbia
Romania
Bulgaria
Montenegro
The Balkans 1908
Turkey
Constantinople
Greece
Turkey

MAP 2


Russia
Austrian Empire
Sarajevo
Romania
Montenegro
Serbia
Bulgaria
Recovered in 2nd Balkan War
Albania
Adrianople
The Balkans 1914
Greece
Turkey

— Maps from *World Affairs 1900 to the Present Day*

**36.** The territorial changes from map 1 to map 2 were accomplished primarily by means of

**A.** civil wars
**B.** nationalist wars
**C.** economic expansion
**D.** imperialist expansion

**37.** The shaded areas on the maps indicate the

**A.** members of the Triple Entente
**B.** members of the Triple Alliance
**C.** extent of economic rivalry in the Balkans
**D.** extent of imperialist domination of the Balkans

---

**38.** By 1914, a major weakness in the Triple Alliance was the territorial rivalry between

**A.** Germany and Russia
**B.** Germany and France
**C.** Austria-Hungary and Italy
**D.** Turkey and Austria-Hungary

**39.** Secret diplomacy and alliance negotiations among the Great Powers immediately prior to the outbreak of the First World War were largely attempts to preserve the

**A.** stability of summit meetings
**B.** sovereignty of neutral states
**C.** security of a balance of power
**D.** strength of democratic governments

**40.** According to the peace negotiators, the creation of Yugoslavia as a state in 1918 was based on the principle of

**A.** acquiring living space
**B.** maintaining coexistence
**C.** achieving self-determination
**D.** enforcing collective security

**41.** A strategy by which nations are convinced that the threatened negative consequences of aggressive action will outweigh possible gains is referred to as

**A.** escalation
**B.** deterrence
**C.** flexible response
**D.** collective security

**42.** The desire of the American government to preserve its national sovereignty by pursuing an isolationist foreign policy was **best** illustrated by its

**A.** entry into the First World War
**B.** initiation of the Lend-Lease program
**C.** refusal to join the League of Nations
**D.** occupation of Berlin following the Second World War

**43.** The Nazi-Soviet Non-Aggression Pact of 1939 and the Yalta Agreement of 1945 were similar in that

**A.** each dealt with territorial changes to Poland
**B.** each guaranteed the security of German boundaries
**C.** both agreements were signed between Hitler and Stalin
**D.** both agreements were based on the principle of self-determination

**44.** "Should Canada increase its NATO commitment by allocating greater revenues to defence spending?"
Two competing values that are **most** clearly involved in this issue are national

**A.** unity and national independence
**B.** security and national prosperity
**C.** unity and the welfare of mankind
**D.** prestige and international equity

**45.** If a historian were arguing that a major cause of the Second World War was the concessions made to Germany, she would stress the provisions of the

**A.** Munich Pact
**B.** Yalta Agreement
**C.** Kellogg-Briand Pact
**D.** Covenant of the League of Nations

**46.** The Hague Conference in 1907 and the SALT I negotiations in 1969 are similar in that both dealt with

**A.** arms limitation
**B.** regional defence
**C.** economic co-operation
**D.** territorial settlements

**47.** The action that contradicted Hitler's assertion that the Sudetenland was his "last territorial claim in Europe" was the

**A.** attainment of the Saar Basin through a plebiscite
**B.** seizure of the remainder of Czechoslovakia
**C.** reoccupation of the Rhineland
**D.** union with Austria

**48.** The conferences among the leaders of the allied powers during the Second World War point out the movement in world affairs toward greater

**A.** nationalism
**B.** ultranationalism
**C.** internationalism
**D.** economic nationalism

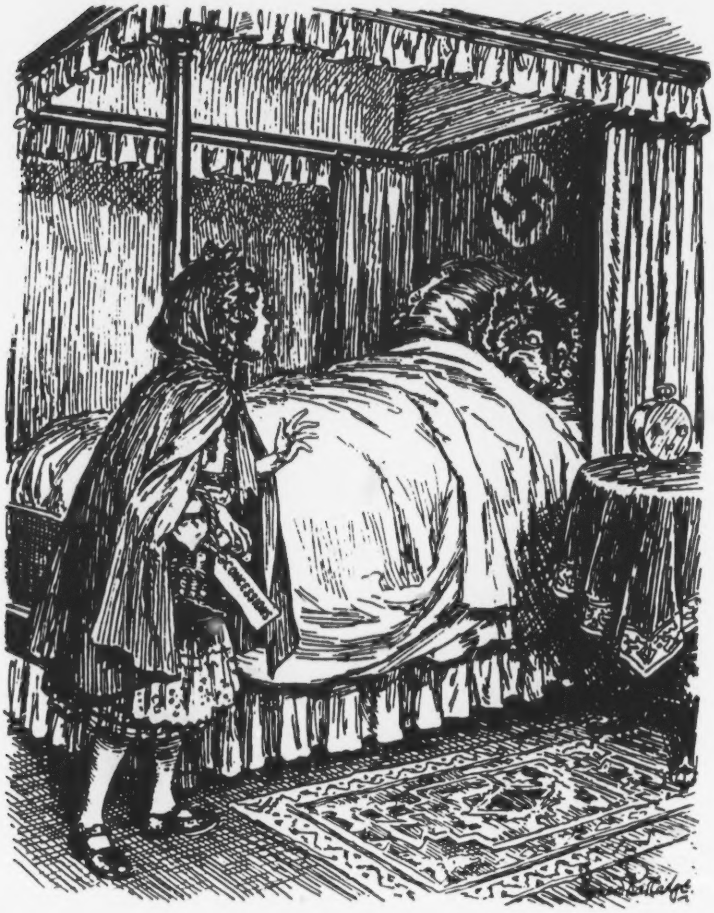
**49.** "Should the British and French governments have signed an accord with Hitler in 1938?"
This issue brought about a conflict between which diplomatic goal and value objective?

**A.** Ignoring collective security and improving national prosperity
**B.** Giving economic assistance and maintaining national harmony
**C.** Strengthening an alliance and encouraging national unity
**D.** Preserving peace and respecting national sovereignty

**50.** The Truman Doctrine as it applied to Europe after the Second World War was intended to

**A.** contain communism
**B.** provide economic aid
**C.** promote American industry
**D.** strengthen internationalism

**Use the following cartoon to answer questions 51 and 52.**



LITTLE CZECH-RIDING-HOOD

*"What sharp teeth you have, Grandmamma!"*
*"All the better for peacefully revising treaties, my dear."*

— from *The Second World War*

**51.** The cartoon was likely made in response to the actions of

- **A.** American and British diplomats at Versailles in 1919
- **B.** German and French diplomats at Locarno in 1925
- **C.** British and French diplomats at Munich in 1938
- **D.** German and Soviet diplomats at Moscow in 1939

**52.** It may be inferred that the cartoonist held strong views regarding the territorial ambitions of

**A.** communist leaders
**B.** fascist dictators
**C.** Western democracies
**D.** Central European states

---

**53.** The enhancement of national prestige was a primary motivation behind the

**A.** British and French participation in the Hague Conferences prior to the First World War

**B.** German and British colonial rivalry prior to the First World War

**C.** formation of NATO following the Second World War

**D.** creation of the UN following the Second World War

**54.** Which development **best** reflected the new order that had emerged in Europe by 1948?

**A.** The Benelux countries formed a political union.
**B.** Yugoslavia remained in the Western sphere of influence.
**C.** Soviet forces occupied much of Central and Eastern Europe.
**D.** Western European nations adopted a foreign policy of isolationism.

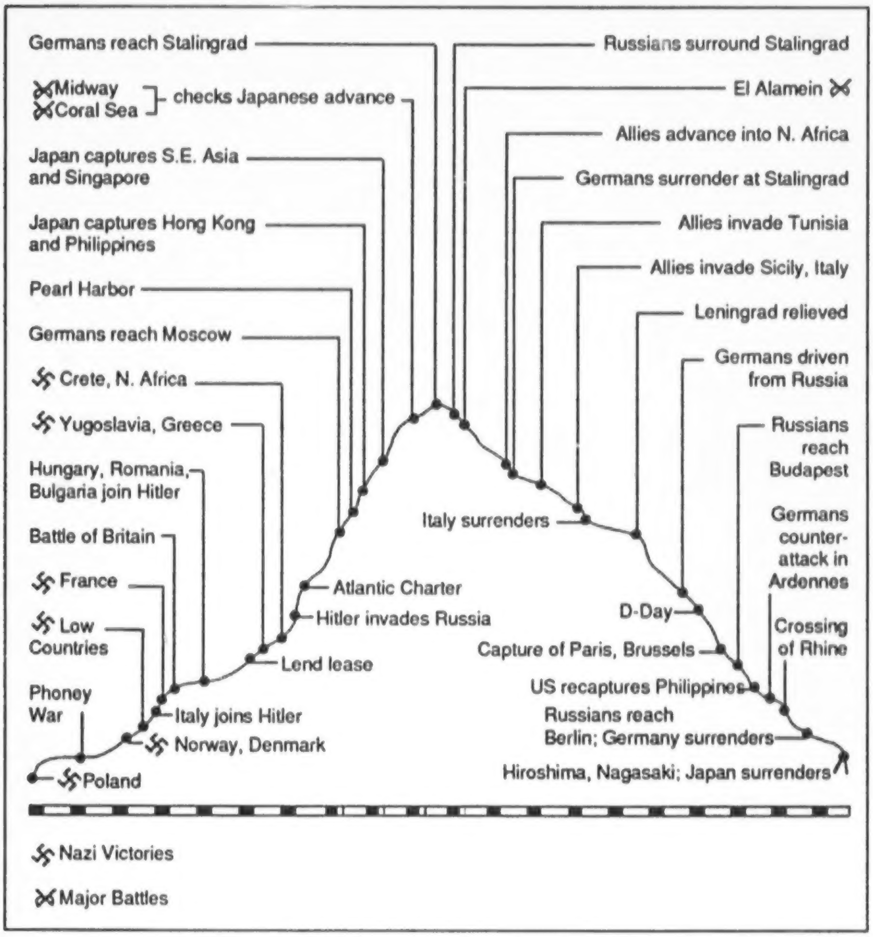
**55.** The American goal of rebuilding Western European economies after the Second World War was accomplished through the

**A.** Marshall Plan
**B.** United Nations
**C.** Alliance for Progress
**D.** European Economic Community

**56.** Participation in the GATT and associate membership with the EC **best** illustrate Canada's commitment to encouraging

**A.** national unity
**B.** global prosperity
**C.** national security
**D.** collective security

**Use the following chart to answer questions 57 and 58.**


Germans reach Stalingrad
Russians surround Stalingrad
Midway
Coral Sea
checks Japanese advance
El Alamein
Allies advance into N. Africa
Japan captures S.E. Asia and Singapore
Germans surrender at Stalingrad
Japan captures Hong Kong and Philippines
Allies invade Tunisia
Allies invade Sicily, Italy
Pearl Harbor
Leningrad relieved
Germans reach Moscow
Germans driven from Russia
Crete, N. Africa
Yugoslavia, Greece
Russians reach Budapest
Hungary, Romania, Bulgaria join Hitler
Italy surrenders
Battle of Britain
Germans counter-attack in Ardennes
France
Atlantic Charter
Hitler invades Russia
D-Day
Low Countries
Crossing of Rhine
Capture of Paris, Brussels
Lend lease
US recaptures Philippines
Phoney War
Italy joins Hitler
Russians reach Berlin; Germany surrenders
Norway, Denmark
Hiroshima, Nagasaki; Japan surrenders
Poland
Nazi Victories
Major Battles

— from *The 20th Century*

**57.** All the data in the chart would be **most** appropriate in researching the

**A.** fascist expansion in Europe
**B.** rise and fall of Nazi Germany
**C.** rise and fall of the Axis powers
**D.** major land battles of the Second World War

**58.** The events in the chart cover the time period

**A.** 1935 to 1945
**B.** 1938 to 1942
**C.** 1939 to 1945
**D.** 1940 to 1948

**59.** According to many Western observers, an essential factor in the origin of the Cold War was the Soviet

**A.** decision to invade Hungary
**B.** decision to blockade Berlin
**C.** placement of missiles in Cuba
**D.** launching of the Sputnik satellite

**60.** Canada's commitment to regional alliances is **best** illustrated by its membership in the

**A.** Commonwealth
**B.** United Nations
**C.** North Atlantic Treaty Organization
**D.** General Agreement on Tariffs and Trade

**61.** Which organization is correctly paired with the major force that contributed to its founding?

**A.** United Nations — supranationalism
**B.** European Economic Community — ultranationalism
**C.** North Atlantic Treaty Organization — isolationism
**D.** General Agreement on Tariffs and Trade — militarism

**62.** The increasing frequency of summit diplomacy provides fresh evidence that a crucial factor in international relations is the

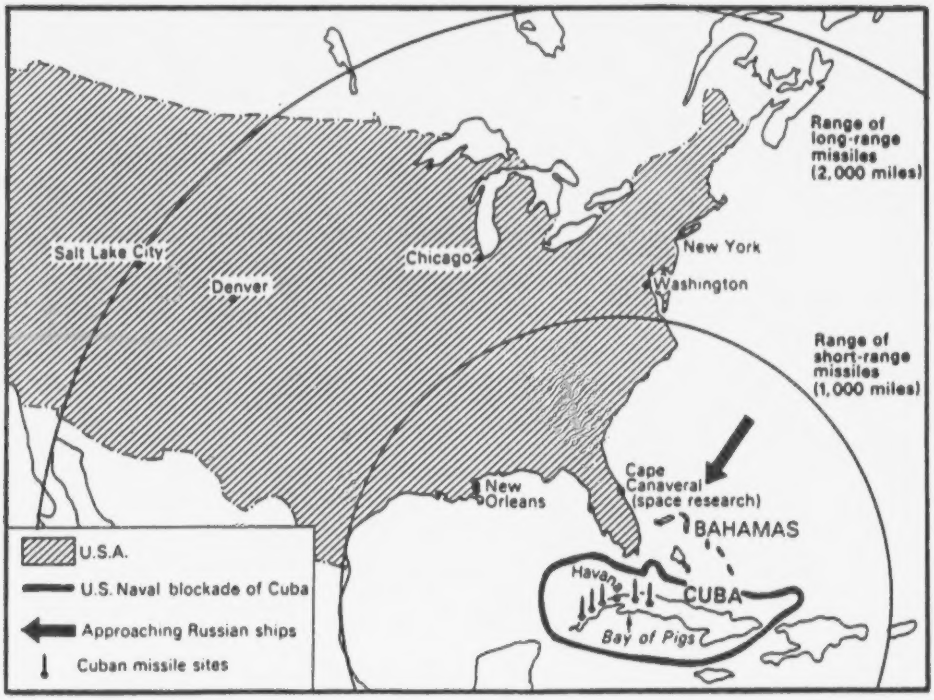
**A.** policies of the nonaligned states
**B.** functioning of the United Nations
**C.** influence of regional alliances
**D.** attitude of the Great Powers

**63.** As a result of Russia's experiences in the Napoleonic Wars and the First and Second World Wars, Stalin's move to create a sphere of influence in Eastern Europe was primarily motivated by a desire to

**A.** build a buffer zone against potential Western invasion
**B.** establish a springboard for a Soviet invasion of the West
**C.** create a zone of economic union to ensure Soviet prosperity
**D.** establish totalitarian control over millions of Slavic people

**Use the following sources to answer questions 64 to 67.**

## SOURCE I


Range of long-range missiles (2,000 miles)
Salt Lake City
Denver
Chicago
New York
Washington
Range of short-range missiles (1,000 miles)
Cape Canaveral (space research)
New Orleans
BAHAMAS
Havana
CUBA
Bay of Pigs
▨ U.S.A.
U.S. Naval blockade of Cuba
Approaching Russian ships
Cuban missile sites

from *Our World This Century*

## SOURCE II

> This secret, swift and extraordinary build-up of Communist missiles in an area well known to have a special and historical relationship to the U.S. is a deliberately provocative change in the status quo which cannot be accepted by this country. To halt this offensive build-up, a strict quarantine on all offensive military equipment under shipment to Cuba is being initiated.
>
> — American President Kennedy

## SOURCE III

> American rockets are in Turkey. You are worried by Cuba. You say that it worried you because it is 90 miles from the American coast. But Turkey is next to us.
>
> — Soviet Premier Khrushchev

**64.** It can be inferred from an examination of the sources that the Cuban missile crisis was primarily sparked by the

**A.** appearance of Soviet ships near Cape Canaveral during secret missile tests

**B.** Soviet invasion of Cuba, a historical ally of the United States

**C.** use of Soviet missiles to crush the American-backed invasion of the Bay of Pigs

**D.** discovery of Soviet bases within 100 miles of the United States

**65.** According to Source III, the Soviet action in Cuba was an attempt to

**A.** restore nuclear balance
**B.** retaliate for rocket attacks on Turkey
**C.** respond to a Cuban request for protection
**D.** expand communist prestige in Latin America

**66.** The action described by Kennedy in Source II to counter Soviet action would be **most** actively supported by advocates of a policy of

**A.** détente
**B.** appeasement
**C.** isolationism
**D.** brinkmanship

**67.** The information in the sources supports which of the following generalizations about superpower relations since the end of the Second World War?

**A.** Meetings between American and Soviet leaders have decreased in number and significance since 1962.

**B.** Disputes between the superpowers have sometimes been resolved through international arbitration.

**C.** Direct military conflict between the superpowers has often been avoided through intervention by another power.

**D.** Relations between American and Soviet leaders have often been strained by international crises involving lesser powers.

**Use the following opinions to answer questions 68 to 70.**

SPEAKER I

It is the political leaders in office who will decide whether the possibility of nuclear war will be transformed into a likelihood, and from a likelihood into a reality. It is they who will be held accountable for the success or failure of efforts to turn back Armageddon — not the scientists, not the military commanders, not the arms merchants, not the negotiators; but the politicians.

SPEAKER II

Government leaders everywhere are very much involved in the politics of war; they are not very much involved in the politics of peace.

SPEAKER III

It is fashionable to complain about our politicians. But people could force their politicians to co-operate if they themselves seriously wanted that. The politicians are expressing the wishes of the voters. This is why a shift in consciousness is a prerequisite for structural change. Great proposals may come about in response to the demands of an aroused conscience.

— source for speakers I, II, and III from *World Press Review*

SPEAKER IV

The greatest menaces to the world today are leaders in office who regard war as inevitable and thus prepare their people for armed conflict. By regarding war as inevitable, it becomes inevitable. Expectations determine behavior.

**68.** Which central issue is raised by the speakers?

**A.** Should nations advocate involvement in international peace movements?

**B.** Should government leaders be held responsible for a nation's military policy?

**C.** Should nations follow a policy of disarmament or deterrence to strengthen their prestige?

**D.** Should government leaders assume dictatorial powers in times of military conflict?

**69.** From the points made by the four speakers, it may be concluded that

**A.** nations can achieve peace through democratic elections
**B.** the decision to arm nationally is primarily a political one
**C.** the arms race is escalating despite attempts to limit weapons
**D.** nuclear war is viewed as inevitable by most political leaders

**70.** To an internationalist, which action would be viewed as **most** appropriate to deal with the problem raised by the speakers?

**A.** Convening a global conference of nations to consider proposals for arms reduction

**B.** Taking military decision making from the politicians and leaving decisions about war to military leaders

**C.** Encouraging governments committed to world peace to form regional defensive alliances

**D.** Increasing nuclear and conventional arms production to make war even more unthinkable

---

## PART B: WRITTEN RESPONSE

The written-response section requires you to write one essay that is worth 30% of the total examination mark.

### INSTRUCTIONS

Choose **EITHER** Topic A or Topic B for your essay. If you write on both topics, **ONLY** the first will be marked.

**BE SURE TO INDICATE YOUR CHOICE OF TOPIC IN THE SPACE PROVIDED ON THE BACK COVER.**

**READ ALL PARTS OF THE ASSIGNMENT CAREFULLY.**

Complete your essay in the space provided. There are pages provided for planning and drafting and for your finished work.

# TOPIC A

## WRITTEN RESPONSE

## ESSAY ASSIGNMENT

In some nations, only one political party is allowed to exist and to form the government. It's believed that such a system best unifies citizens in a common purpose. In other nations, two major political parties contend with one another to form the government. In still other nations, many different political parties representing a variety of policies compete with one another to form the government.

### SHOULD NATIONS HAVE MULTIPARTY POLITICAL SYSTEMS?

In an essay, choose and defend a position on this issue.

### SUGGESTION FOR WRITING:

Organize your essay in a manner that will best defend your position on the issue. The mark allocation described below is not intended to imply an organizational structure for your essay.

### YOUR ESSAY WILL BE EVALUATED ON HOW WELL YOU:

| | |
|---|---|
| Defend a position on this issue by using logical and persuasive arguments | 10 marks |
| Identify and thoughtfully discuss alternative value positions underlying this issue | 5 marks |
| Select and accurately develop one or more relevant examples or case studies drawn from your knowledge of social studies content in defending your position on this issue | 10 marks |
| Communicate effectively on this issue by using appropriate vocabulary and organization, and correct conventions of language | 5 marks |
| TOTAL MARKS FOR ESSAY | 30 marks |

**BE SURE TO INDICATE YOUR CHOICE OF TOPIC ON THE BACK COVER.**

# TOPIC B

## WRITTEN RESPONSE

## ESSAY ASSIGNMENT

Some governments have attempted to prevent aggression by joining various alliances established to achieve a balance of power. They believe that in a balance of power system, no nation or group of nations will feel strong enough to threaten another. Other governments believe that a balance of power system is dangerous and that some other system must be established to prevent conflict among states.

**DOES A BALANCE OF POWER SYSTEM PREVENT AGGRESSION AMONG STATES?**

In an essay, choose and defend a position on this issue.

### SUGGESTION FOR WRITING:

Organize your essay in a manner that will best defend your position on the issue. The mark allocation described below is not intended to imply an organizational structure for your essay.

### YOUR ESSAY WILL BE EVALUATED ON HOW WELL YOU:

| | |
|---|---|
| Defend a position on this issue by using logical and persuasive arguments | 10 marks |
| Identify and thoughtfully discuss alternative value positions underlying this issue | 5 marks |
| Select and accurately develop one or more relevant examples or case studies drawn from your knowledge of social studies content in defending your position on this issue | 10 marks |
| Communicate effectively on this issue by using appropriate vocabulary and organization, and correct conventions of language | 5 marks |
| TOTAL MARKS FOR ESSAY | 30 marks |

**BE SURE TO INDICATE YOUR CHOICE OF TOPIC ON THE BACK COVER.**

FOR ROUGH WORK

## FOR FINISHED WORK

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| Source 64-67 | Map by Derek Heater from *Our World This Century* (Don Mills, Ontario: Oxford University Press). Reprinted by permission of Oxford University Press. |
| Source 68-70 | From *World Press Review*, January 1985. Reprinted by permission of World Press Review. |

**INDICATE YOUR CHOICE OF TOPIC**

**CHECK ONE**

**TOPIC A** ☐

**TOPIC B** ☐

**FOR DEPARTMENT USE ONLY**

| | | |
|---|---|---|
| ☐ | ☐ | ☐ |
| **M1** | **M2** | **M3** |

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SOCIAL STUDIES 30

**NAME:** (LAST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ (FIRST NAME) ☐☐☐☐☐☐☐☐☐☐☐☐ **DATE OF BIRTH:** Y ☐☐ M ☐☐ D ☐☐ **SEX:** ☐

**PERMANENT MAILING ADDRESS:** ______________________________
(Apt./Street/Ave./P.O. Box) (Village/Town/City) (Postal Code)

**SCHOOL CODE:** ☐☐☐☐ **SCHOOL:** ____________________ **SIGNATURE:** ____________________

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**SOCIAL STUDIES 30**

499

# EXAMEN EN VUE DU DIPLÔME
# DOUZIÈME ANNÉE

## Études sociales 30

Janvier 1990

Alberta
EDUCATION

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# EXAMEN EN VUE DU DIPLÔME
# ÉTUDES SOCIALES 30

## INSTRUCTIONS GÉNÉRALES

VOUS AVEZ DEUX HEURES ET DEMIE POUR FAIRE CET EXAMEN. PRÉVOYEZ SOIGNEUSEMENT VOTRE TEMPS.

PARTIE A Elle consiste en questions à choix multiples qui comptent pour 70% de la note totale.

PARTIE B Elle consiste en une dissertation qui compte pour 30% de la note totale.

IL EST RECOMMANDÉ DE LIRE LES QUESTIONS DE LA PARTIE B EN ENTIER AVANT DE COMMENCER L'EXAMEN. LES IDÉES APPARAISSANT DANS LES QUESTIONS À CHOIX MULTIPLES PEUVENT VOUS AIDER À COMPOSER VOTRE DISSERTATION.

## INSTRUCTIONS POUR LA PARTIE A: QUESTIONS À CHOIX MULTIPLES

- Utilisez uniquement un crayon HB.
- Écrivez votre nom et autres renseignements requis sur la feuille de réponses séparée.
- Indiquez toutes vos réponses sur la feuille de réponses séparée.
- Si vous voulez changer une de vos réponses, effacez complètement la première marque.

Exemple

La capitale du Canada est

A. Vancouver
B. Winnipeg
C. Ottawa
D. Montréal

Feuille de réponses

| A | B | C | D |
|---|---|---|---|
| ① | ② | ● | ④ |

L'examinateur ramassera les feuilles de réponses et les livrets d'examen.

**NE PLIEZ NI LA FEUILLE DE RÉPONSES NI LE LIVRET D'EXAMEN.**

JANVIER 1990

1. Une des critiques **les plus** courantes d'une économie de marché est

   A. son manque de flexibilité dans la production
   B. son manque de réponse à la demande du consommateur
   C. la fluctuation de son cycle économique
   D. l'inefficacité de son organisation bureaucratique

2. Dans un système économique où la planification est décentralisée, **la plupart** des décisions de production sont prises par les

   A. groupes de pression de consommateurs
   B. industries de services
   C. agences gouvernementales
   D. entreprises individuelles

3. Dans une dictature modèle, la fonction primordiale des médias est

   A. de jauger l'opinion publique pour déterminer les politiques du parti
   B. de promouvoir la propagande du parti et d'endoctriner les citoyens
   C. d'étouffer la croissance des partis d'opposition et des groupes dissidents
   D. de canaliser les plaintes du public et d'agir comme opposition officieuse

4. Quel point de vue représente une croyance dans l'importance du collectivisme plutôt que de l'individualisme?

   A. La société canadienne serait plus saine si nous insistions plus sur la concurrence et moins sur la réglementation.

   B. Le développement des ressources naturelles d'une nation devrait être entre les mains de l'entreprise privée.

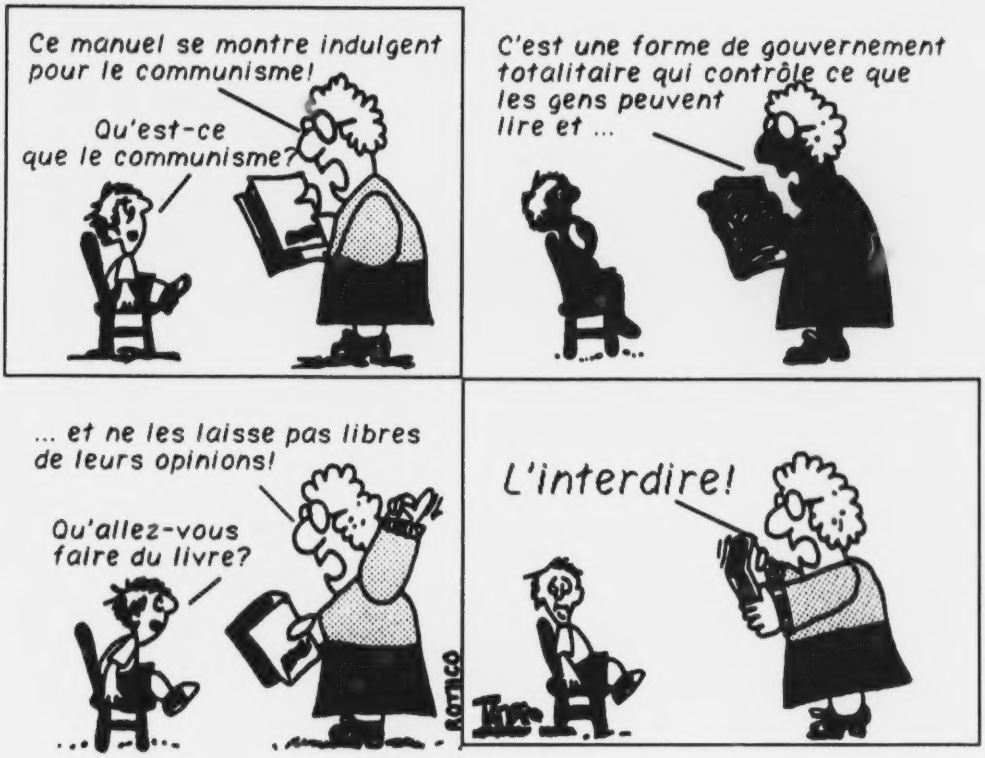
   C. Le gouvernement doit assurer que le droit fondamental de chaque citoyen à un niveau de vie décent est maintenu.

   D. Les gouvernements provinciaux devraient accorder de plus grandes réductions d'impôts aux compagnies pétrolières plutôt que d'augmenter leurs redevances.

5. La réponse du fascisme au problème du conflit de classe est

   A. de subordonner les différences aux buts de l'État
   B. de provoquer les dissensions et de déstabiliser l'État
   C. d'essayer de satisfaire quelques exigences de chaque classe
   D. d'éliminer toutes les classes sauf la classe ouvrière

Utilisez le dessin suivant pour répondre à la question 6.


Ce manuel se montre indulgent pour le communisme!
Qu'est-ce que le communisme?
C'est une forme de gouvernement totalitaire qui contrôle ce que les gens peuvent lire et ...
... et ne les laisse pas libres de leurs opinions!
Qu'allez-vous faire du livre?
L'interdire!

-- dans *Censorship*

6. L'humour de ce dessin tient au fait que l'interlocutrice

   A. montre du parti pris contre l'idéologie communiste
   B. critique quelque chose dont elle ne sait rien
   C. recommande une action qu'elle vient de critiquer
   D. montre du parti pris pour le régime politique démocratique

---

7. "La gloire des nations libres est que leurs citoyens peuvent contester, peuvent être en désaccord, peuvent choisir de nouveaux chefs." Cette opinion accorde la plus grande priorité

   A. à la citoyenneté
   B. à l'égalité sociale
   C. au progrès personnel
   D. à la liberté personnelle

8. Un trait commun des gouvernements d'Adolf Hitler et de Joseph Staline était

A. la nationalisation de tous les grands moyens de production
B. l'emploi de cours populaires indépendantes pour rendre la justice
C. la justification d'un gouvernement totalitaire basé sur la supériorité raciale
D. l'élimination des opposants politiques par des purges à l'intérieur du parti

Utilisez le passage suivant pour répondre à la question 9.

> De nombreux sondages d'opinion indiquent clairement que la majorité des gens croient qu'en tant qu'individus ils ont très peu de pouvoir sur le plan politique. Le sentiment que le gouvernement est grand, éloigné et trop complexe pour être compris et que l'individu n'a, par conséquent, pas beaucoup d'influence, est prédominant dans toutes les régions du pays et dans tous les groupes socio-économiques, bien qu'on le trouve le plus, comme on pourrait s'y attendre, dans les régions les moins prospères et chez ceux qui sont près ou au-dessous du seuil de pauvreté.
>
> -- dans *Teaching Canada for the 80s*

9. L'analyse de quelle statistique serait **surtout** utile pour prouver la validité des affirmations de l'auteur?

A. Le taux d'accroissement du nombre d'électeurs
B. La redistribution des circonscriptions avant une élection
C. La taux de participation électorale à des élections de différents niveaux de gouvernement
D. La répartition des résultats électoraux par parti politique

---

10. Lequel des groupes socialistes suivants s'opposerait **le plus** vraisemblablement à la position que les choix économiques devraient être basés entièrement sur les principes du collectivisme?

A. Le parti stalinien en Albanie
B. Le parti communiste en Roumanie
C. Le parti marxiste-léniniste au Canada
D. Le parti social-démocrate en Suède

11. La responsabilité exécutive est **le mieux** illustrée par la coutume

A. aux États-Unis d'avoir les nominations à la Cour suprême faites par le président
B. au Canada que la Chambre des communes contrôle le passage des lois proposées par le cabinet
C. en Grande-Bretagne que le Parlement contrôle directement l'ordre de succession au trône
D. en Union soviétique de faire choisir les membres du Comité central par le Politburo

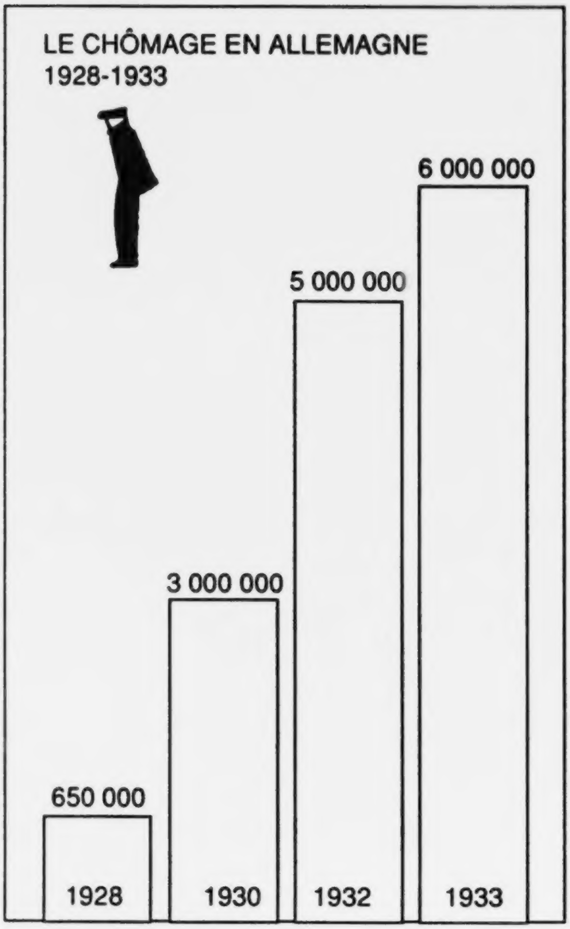
Utilisez l'information suivante pour répondre aux questions 12 et 13.

SOURCE I

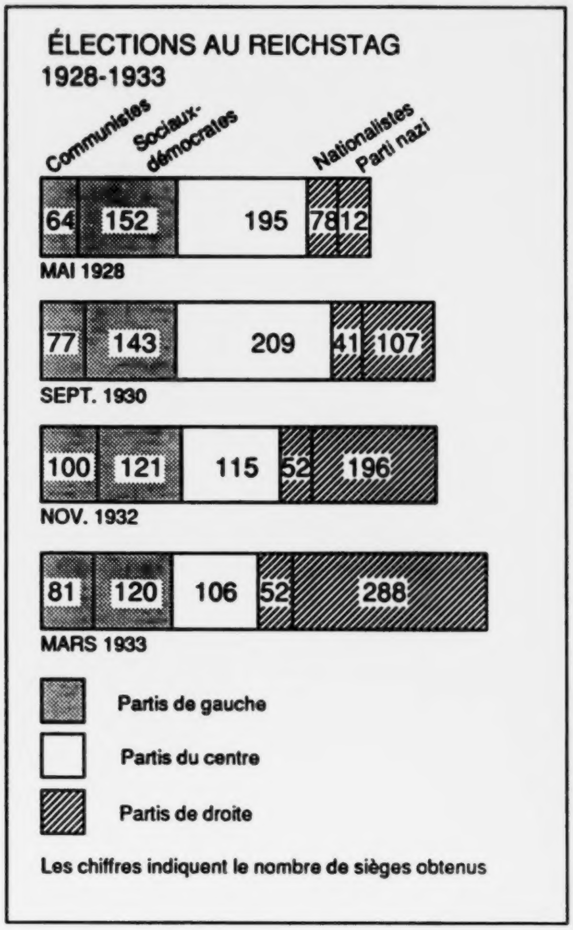
La démocratie existe pour que les conditions prédominantes permettent à l'homme du commun d'être dans une meilleure position que dans toute autre forme de gouvernement. La démocratie est donc en danger chaque fois qu'il y a une plus grande proportion de familles insécurisées ou de citoyens aliénés dans le pays. La démocratie est affaiblie chaque fois que ceux qui sont au pouvoir essaient de supprimer les libertés de presse ou d'expression, ou que les groupes minoritaires qui ne peuvent pas contrôler les élections refusent d'obéir aux lois qui ont été faites par la majorité. L'Allemagne, en 1938, dit que c'est seulement sous une dictature qu'un gouvernement pourrait prendre des mesures fortes et unifiées; que, dans une démocratie, l'inefficacité règne et qu'on y perd un temps précieux à parler et à discuter.

-- adaptation de *World Affairs*, November 1938

SOURCE II



SOURCE III



-- sources II et III, adaptation de *The Rise of Totalitarian States*

12. On peut inférer d'un examen des sources que

A. l'instabilité politique conduit souvent au chaos économique et à l'anarchie

B. le chômage élevé amène les gens à choisir les partis centralistes établis

C. le fascisme constitute une menace pour les institutions démocratiques en périodes d'instabilité économique

D. la suppression des libertés démocratiques assure une victoire des fascistes aux élections

13. À considérer les chiffres du chômage de la Source II, quelle constatation de la Source I explique **le mieux** les résultats des élections de la Source III?

A. "La démocratie est . . . en danger chaque fois qu'il y a une plus grande proportion de familles insécurisées ou de citoyens aliénés dans le pays."

B. "La démocratie existe pour que les conditions prédominantes permettent à l'homme du commun d'être dans une meilleure position que dans toute autre forme de gouvernement."

C. "L'Allemagne . . . dit que c'est seulement sous une dictature qu'un gouvernement pourrait prendre des mesures fortes et unifiées; que, dans une démocratie, l'inefficacité règne et qu'on y perd un temps précieux à parler et à discuter."

D. "La démocratie est affaiblie chaque fois que ceux qui sont au pouvoir essaient de supprimer les libertés . . . ou que les groupes minoritaires qui ne peuvent pas contrôler les élections refusent d'obéir aux lois qui ont été faites par la majorité."

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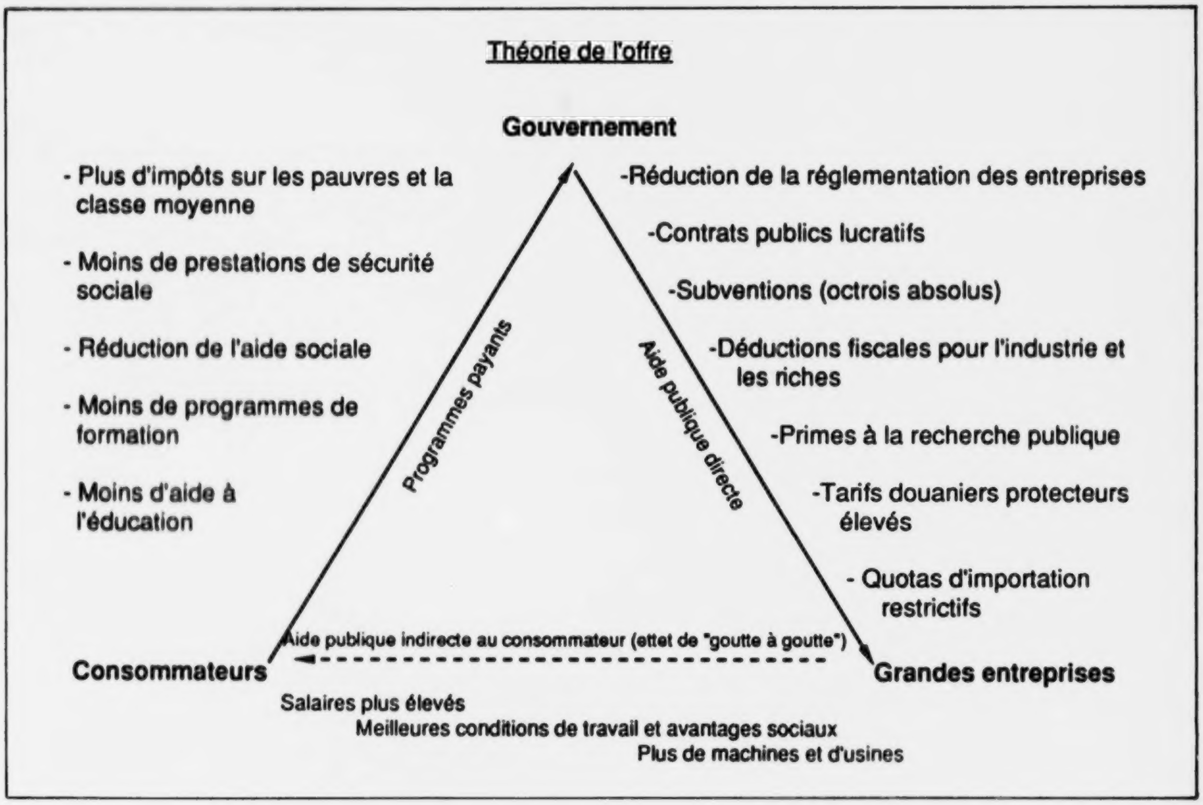
14. Les gouvernements des pays qui ont des économies mixtes ont habituellement essayé de contrôler l'inflation en augmentant

A. les taux d'intérêt
B. la masse monétaire
C. les exemptions d'impôts sur le revenu
D. les dépenses publiques

15. Le rôle des planificateurs gouvernementaux dans un système d'entreprise publique modèle serait remplacé dans un système d'entreprise privée modèle par

A. les cadres des multinationales
B. les dirigeants des syndicats approuvés par l'État
C. la dictature du prolétariat
D. la loi de l'offre et de la demande

Utilisez le diagramme ci-dessous pour répondre aux questions 16 à 19.



Théorie de l'offre

Gouvernement
- Plus d'impôts sur les pauvres et la classe moyenne
- Moins de prestations de sécurité sociale
- Réduction de l'aide sociale
- Moins de programmes de formation
- Moins d'aide à l'éducation
-Réduction de la réglementation des entreprises
-Contrats publics lucratifs
-Subventions (octrois absolus)
-Déductions fiscales pour l'industrie et les riches
-Primes à la recherche publique
-Tarifs douaniers protecteurs élevés
- Quotas d'importation restrictifs
Programmes payants
Aide publique directe
Aide publique indirecte au consommateur (effet de "goutte à goutte")
Consommateurs
Grandes entreprises
Salaires plus élevés
Meilleures conditions de travail et avantages sociaux
Plus de machines et d'usines

-- dans *Political Ideologies: Their Origins and Impact*

16. Quelle question la politique économique décrite sur le diagramme aborde-t-elle?

    A. Les gouvernements devraient-ils encourager la croissance dans leurs économies en aidant les producteurs?

    B. Les gouvernements devraient-ils diriger l'aide publique vers les grandes entreprises pour contrôler l'inflation?

    C. Les gouvernements devraient-ils réduire les prestations d'aide sociale pour encourager la coopération économique?

    D. Les gouvernements devraient-ils augmenter les impôts sur les producteurs pour réduire le chômage?

17. Dans le cas d'une récession, un gouvernement suivant la politique économique décrite sur le diagramme voudrait probablement

    A. augmenter les prestations d'assurance chômage
    B. augmenter les taux d'intérêt pour réduire l'inflation
    C. réduire les impôts sur les producteurs pour stimuler les investissements
    D. réduire les subventions aux producteurs pour diminuer les déficits budgétaires

18. Une mesure appropriée pour un gouvernement recommandant la politique économique décrite sur le diagramme serait

A. des subventions pour une nouvelle industrie de télécommunications
B. des normes strictes sur la lutte contre la pollution de l'environnement
C. une diminution des taxes à l'importation sur les voitures étrangères
D. un appui financier pour recycler la main-d'oeuvre en vue de nouvelles occupations dans les techniques de pointe

19. Un grand principe de la théorie de l'offre, comme le montre le diagramme, est

A. qu'un secteur privé prospère mènera à une augmentation des profits pour toute l'économie

B. que l'aide publique directe aux producteurs mènera à l'augmentation des prestations de chômage

C. qu'un secteur privé prospère mènera à un grand écart entre les riches et les pauvres

D. que l'aide publique directe aux producteurs mènera à l'augmentation des contributions privées aux oeuvres de charité

---

20. Un chef d'un système économique et politique fasciste soutiendrait **le plus** fortement les valeurs

A. de coopération et de compréhension
B. d'initiative et d'individualisme
C. de liberté et de prospérité
D. de service et de devoir

21. Laquelle des mesures gouvernementales suivantes représente une technique de démocratie directe?

A. Établir la conscription
B. Demander la clôture parlementaire
C. Procéder à des référendums ou des plébiscites
D. Maintenir la représentation en fonction de la population

22. Selon le principe de la "main invisible", le motif du profit pousse les gens d'affaires à

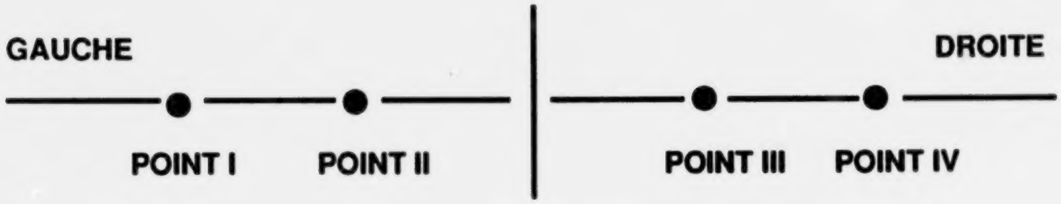
A. maintenir leur position économique dominante
B. être au service du bien collectif tout en poursuivant leur profit personnel
C. poursuivre des intérêts individuels sans tenir aucun compte des intérêts collectifs
D. servir les intérêts collectifs aux dépens d'intérêts individuels

Utilisez l'information suivante pour répondre aux questions 23 à 25.

Une personne a les opinions politiques et économiques suivantes:

- Les citoyens devraient suivre la volonté du groupe.
- Il faut un changement d'importance pour ramener la société à ses traditions et valeurs qui sont tombées à l'abandon.
- Il faut que l'activité économique reflète les objectifs nationaux.
- Tout le monde doit accepter qu'il existe entre les races et les individus une inégalité fondamentale et naturelle.

23. Ces opinions se trouveraient à quel point sur l'éventail politique suivant?



A. Point I
B. Point II
C. Point III
D. Point IV

24. La source qui est **la plus** conforme aux opinions de la personne ci-dessus est

A. *La Liberté*
B. *Mein Kampf*
C. *Le Capital*
D. *Recherches sur la nature et les causes de la richesse des nations*

25. Cette personne serait **le plus** en faveur d'un système basé sur

A. des principes anarchistes
B. les principes de l'entreprise publique
C. la dictature comme en Italie pendant les années 30
D. le capitalisme démocratique comme aux États-Unis pendant les années 20

Utilisez le passage suivant pour répondre aux questions 26 et 27.

> Au cours des derniers mois de 1919 et des premiers mois de 1920, un tiers de l'Italie était aux mains des communistes. Leur administration a été marquée par la violence et le gaspillage des fonds publics. Ils se sont imposés de plus en plus aux gens. Ils ont recouru aux attaques, aux grèves, au chantage et au rachat d'usines et de terres. Ceux qui étaient encore loyaux envers la nation italienne n'avaient donc pas d'autre choix que de se protéger par la force des armes.
>
> -- dans *The Rise of Totalitarian States*

26. D'après le passage, on pourrait conclure que la personne qui parle est le **plus** vraisemblablement partisane

A. du marxisme radical
B. des causes anarchistes
C. de la révolution prolétarienne
D. des forces contre-révolutionnaires

27. Pour justifier cette position, la personne fait surtout appel au principe

A. du bien-être matériel personnel
B. de la pratique démocratique
C. du devoir patriotique
D. de l'humanitarisme

---

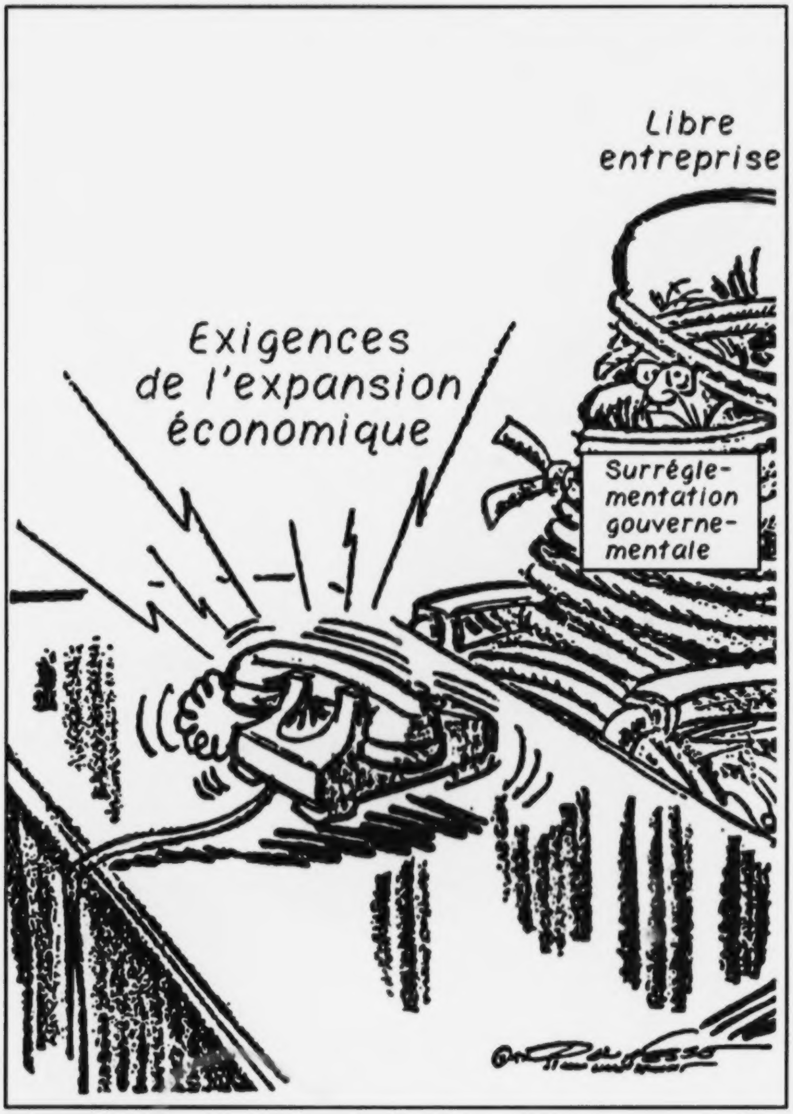
28. Le socialisme en tant que force politique et économique tire ses origines surtout

A. de la montée de l'État nation
B. des abus du capitalisme industriel
C. du succès de la révolution bolchevique
D. de la désintégration des empires coloniaux d'Europe

29. "L'expérience montre que, lorsque le corps exécutif et le corps législatif du gouvernement se mettent à rivaliser pour obtenir le pouvoir, toute action décisive en politique est impossible."
Cette position témoigne contre

A. les droits individuels
B. la séparation des pouvoirs
C. le gouvernement démocratique
D. le gouvernement autocratique

Utilisez le dessin suivant pour répondre aux questions 30 à 32.


Libre entreprise
Exigences de l'expansion économique
Surréglementation gouvernementale

30. Selon le dessin, la réglementation gouvernementale a réduit

A. les investissements de capitaux
B. l'égalité des revenus
C. la demande de biens de consommation
D. la demande de services publics

31. Le dessin implique du parti pris en faveur de quelle paire de valeurs?

    A. L'égalité et la générosité
    B. L'initiative et le laissez-faire
    C. La stabilité économique et la conformité
    D. Les traditions économiques et l'utilité

32. Lequel des systèmes économiques et politiques suivants le caricaturiste soutiendrait-il **le plus** vraisemblablement?

    A. Le fascisme
    B. Le communisme
    C. Le socialisme démocratique
    D. Le capitalisme démocratique

---

33. Une différence majeure entre les systèmes de gouvernement canadien est suédois est

    A. le vote à bulletin secret pour élire les députés
    B. la répartition des sièges à la suite d'une élection générale
    C. la responsabilité du cabinet envers le pouvoir législatif du gouvernement
    D. la tradition des contraintes constitutionnelles et parlementaires imposées au pouvoir royal

34. Benito Mussolini et Adolf Hitler ont tous les deux obtenu le pouvoir politique en

    A. utilisant la puissance des forces armées
    B. s'emparant du pouvoir par une révolution violente
    C. manipulant et intimidant les régimes démocratiques
    D. attendant que les guerres éclatent et en prenant le pouvoir grâce à une législation extraordinaire

35. Au Canada, l'idée de solidarité du cabinet et du caucus corrobore l'idée que les députés élus devraient agir comme

    A. délégués et voter comme leurs électeurs le leur demandent

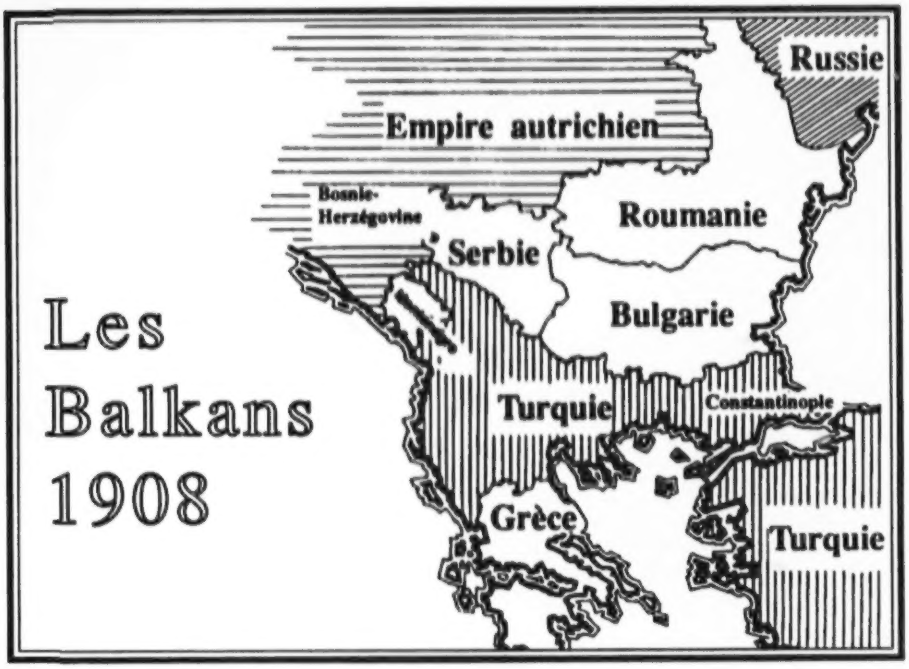
    B. porte-parole pour leurs électeurs mais décider de chaque question en toute objectivité

    C. agents pour les intérêts de leurs électeurs et placer ces intérêts au-dessus de tous les autres

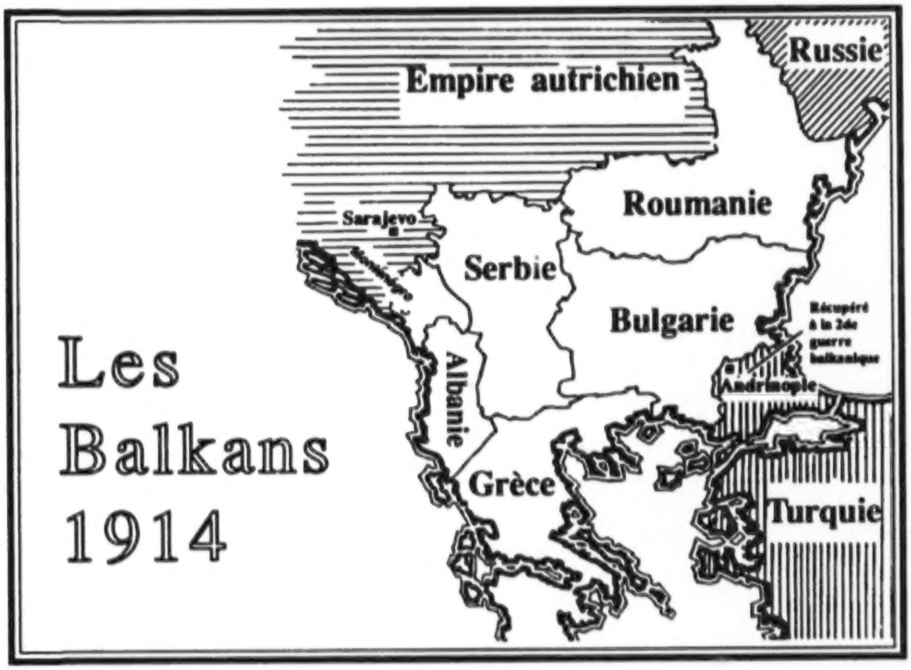
    D. membres d'un parti et rester unis sur toutes les questions derrière la position du parti et ses chefs

Utilisez les cartes suivantes pour répondre aux questions 36 et 37.

1<sup>re</sup> CARTE


Russie
Empire autrichien
Bosnie-Herzégovine
Roumanie
Serbie
Les Balkans 1908
Bulgarie
Turquie
Constantinople
Grèce
Turquie

2<sup>e</sup> CARTE


Russie
Empire autrichien
Roumanie
Sarajevo
Serbie
Bulgarie
Récupéré à la 2de guerre balkanique
Andrinople
Albanie
Les Balkans 1914
Grèce
Turquie

-- Cartes tirées de *World Affairs 1900 to the Present Day*

36. Les changements territoriaux de la 1re carte à la 2e carte ont été effectués surtout au moyen

A. de guerres civiles
B. de guerres nationalistes
C. d'une expansion économique
D. d'une expansion impérialiste

37. Les zones hachurées sur les cartes indiquent

A. les membres de la Triple-Entente
B. les membres de la Triple-Alliance
C. l'étendue de la rivalité économique dans les Balkans
D. l'étendue de la domination impérialiste des Balkans

---

38. Dès 1914, une faiblesse majeure de la Triple-Alliance était la rivalité territoriale entre

A. l'Allemagne et la Russie
B. l'Allemagne et la France
C. l'Autriche-Hongrie et l'Italie
D. la Turquie et l'Autriche-Hongrie

39. La diplomatie secrète et les négociations d'alliance entre les grandes puissances immédiatement avant que la Première Guerre mondiale éclate étaient en grande partie des tentatives pour sauvegarder

A. la stabilité des réunions au sommet
B. la souveraineté des États neutres
C. la sécurité d'un équilibre des forces
D. la force des gouvernements démocratiques

40. Selon les négociateurs de paix, la création de la Yougoslavie en État en 1918 était basée sur le principe

A. d'acquisition de l'espace vital
B. de maintien de la coexistence
C. de réalisation de l'autodétermination
D. d'imposition de la sécurité collective

41. Une stratégie par laquelle les nations sont convaincues que les conséquences négatives d'action offensive qui les menacent l'emporteront sur les gains possibles est appelée

A. escalade
B. force de dissuasion
C. réponse flexible
D. sécurité collective

42. Le désir du gouvernement américain de préserver sa souveraineté nationale en poursuivant une politique étrangère isolationniste a été **le mieux** illustré par son

A. entrée dans la Première Guerre mondiale
B. inauguration du programme de prêt-bail
C. refus d'entrer dans la Société des Nations
D. occupation de Berlin à la suite de la Seconde Guerre mondiale

43. Le pacte de neutralité germano-soviétique de 1939 et les accords de Yalta de 1945 étaient semblables en ce que

A. chacun traitait de changements territoriaux en Pologne
B. chacun garantissait la sécurité des frontières allemandes
C. les deux accords étaient signés entre Hitler et Staline
D. les deux accords étaient basés sur le principe d'autodétermination

44. "Le Canada devrait-il accroître son engagement vis-à-vis de l'OTAN en affectant plus de revenus aux dépenses militaires?"
Les deux valeurs concurrentielles qui sont **le plus** clairement en jeu dans cette question sont

A. l'unité nationale et l'indépendance nationale
B. la sécurité nationale et la prospérité nationale
C. l'unité nationale et le bien-être de l'humanité
D. le prestige national et l'équité internationale

45. Si une historienne prétendait qu'une des causes majeures de le Seconde Guerre mondiale était les concessions faites à l'Allemagne, elle mettrait l'accent sur

a. les accords de Munich
B. les accords de Yalta
C. le pacte Briand-Kellogg
D. le pacte de la Société des Nations

46. La Conférence de La Haye en 1907 et les négociations SALT 1 en 1969 sont semblables en ce que toutes les deux traitaient de

A. contrôle des armements
B. défense régionale
C. coopération économique
D. règlements territoriaux

47. La mesure qui contredisait l'assertion d'Hitler que les Sudètes étaient sa "dernière revendication territoriale en Europe" a été

A. l'acquisition du bassin de la Sarre par un plébiscite
B. la prise du reste de la Tchécoslovaquie
C. la réoccupation de la Rhénanie
D. l'union avec l'Autriche

48. Les conférences entre les chefs des puissances alliées pendant la Seconde Guerre mondiale indiquent dans les affaires mondiales un mouvement vers un plus grand

A. nationalisme
B. ultranationalisme
C. internationalisme
D. nationalisme économique

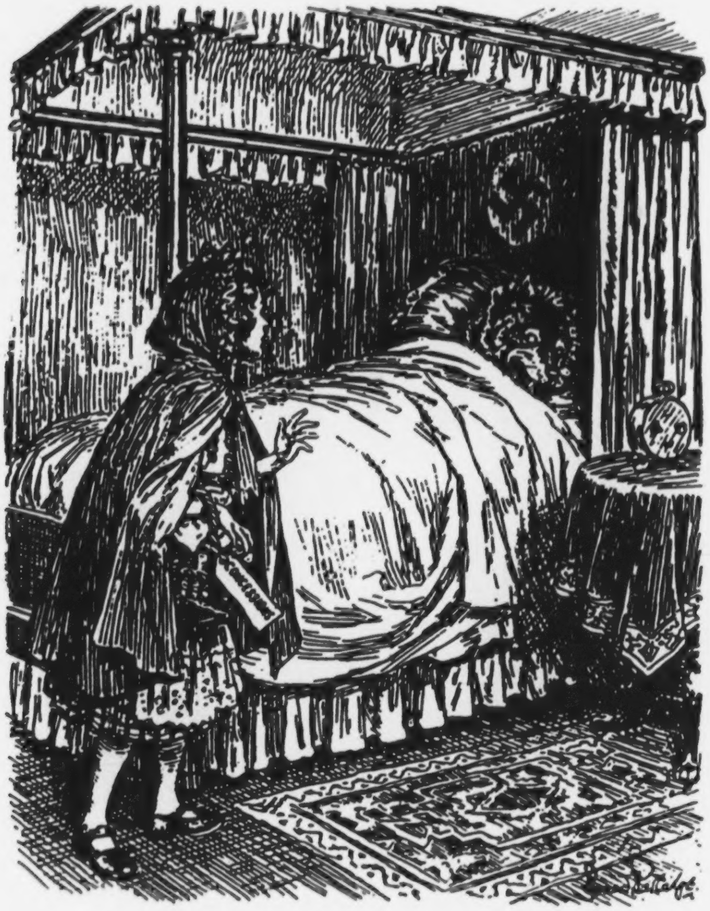
49. "Les gouvernements britannique et français auraient-ils dû signer un accord avec Hitler en 1938?"
Cette question a provoqué un conflit entre quel but diplomatique et quel objectif de valeur?

A. Ne pas tenir compte de la sécurité collective et améliorer la prospérité nationale
B. Donner une aide économique et maintenir l'harmonie nationale
C. Affermir une alliance et encourager l'unité nationale
D. Maintenir la paix et respecter la souveraineté nationale

50. La doctrine Truman telle qu'elle a été appliquée à l'Europe après la Seconde Guerre mondiale était destinée à

A. contenir le communisme
B. fournir une aide économique
C. promouvoir l'industrie américaine
D. renforcer l'internationalisme

Utilisez le dessin suivant pour répondre aux questions 51 et 52.



LE PETIT CHAPERON TCHÈQUE

*"Comme vous avez de grandes dents, ma mère grand!"*
*"C'est pour mieux réviser les traités dans la paix, mon enfant."*

-- dans *The Second World War*

51. Le dessin a probablement été fait en réponse aux actions des diplomates

    A. américains et britanniques à Versailles en 1919
    B. allemands et français à Locarno en 1925
    C. britanniques et français à Munich en 1938
    D. allemands et soviétiques à Moscou en 1939

52. On peut en inférer que le caricaturiste avait de fortes opinions sur les ambitions territoriales des

A. dirigeants communistes
B. dictateurs fascistes
C. démocraties occidentales
D. États d'Europe centrale

---

53. Rehausser le prestige national était la motivation primordiale à l'origine de la

A. participation britannique et française aux Conférences de La Haye avant la Première Guerre mondiale

B. rivalité coloniale entre les Allemands et les Britanniques avant la Première Guerre mondiale

C. formation de l'OTAN à la suite de la Seconde Guerre mondiale

D. création de l'ONU à la suite de la Seconde Guerre mondiale

54. Quel fait nouveau reflète **le mieux** le nouvel ordre qui s'est fait jour en Europe dès 1948?

A. Les pays du Benelux ont formé une union politique.
B. La Yougoslavie est restée dans la sphère d'influence occidentale.
C. Les forces soviétiques ont occupé une grande partie de l'Europe centrale et de l'Est.
D. Les nations d'Europe de l'Ouest ont adopté une politique étrangère d'isolationnisme.

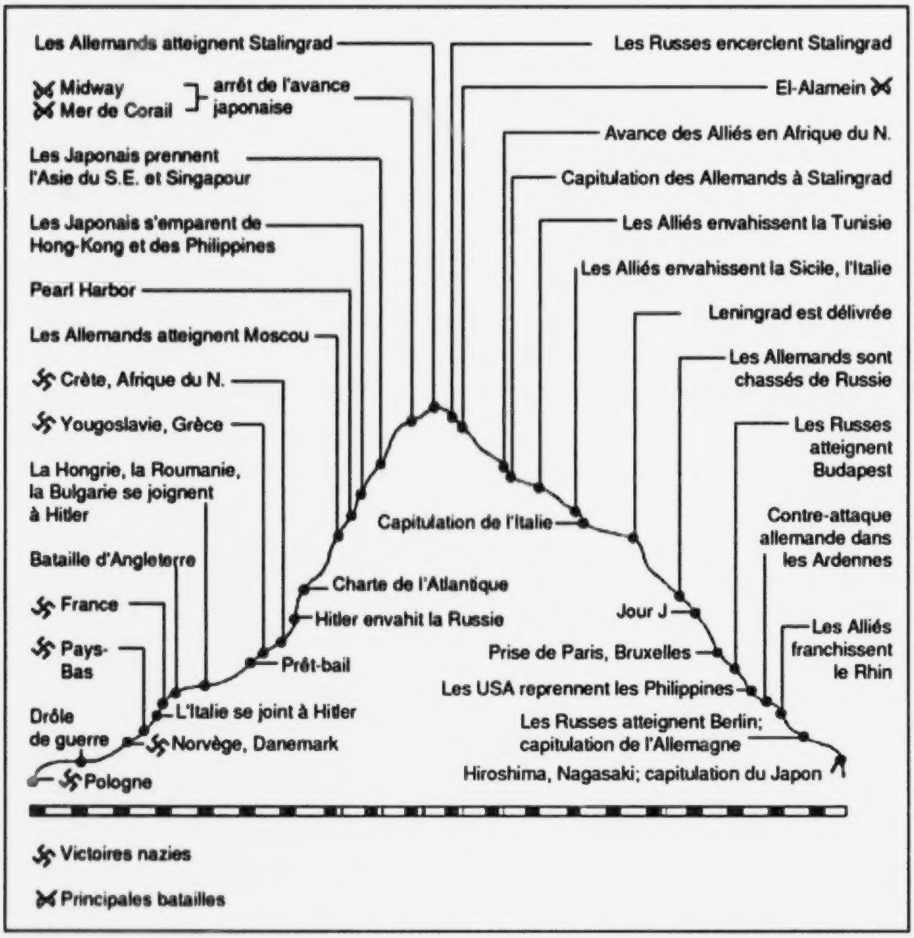
55. Le but américain de la reconstruction des économies d'Europe de l'Ouest après la Seconde Guerre mondiale a été atteint par

A. le plan Marshall
B. les Nations unies
C. l'Alliance pour le Progrès
D. la Communauté économique européenne

56. La participation au GATT et son titre de membre associé de la CE illustrent **le mieux** l'engagement du Canada à encourager

A. l'unité nationale
B. la prospérité mondiale
C. la sécurité nationale
D. la sécurité collective

Utilisez le tableau suivant pour répondre aux questions 57 et 58.


Les Allemands atteignent Stalingrad
Les Russes encerclent Stalingrad
Midway
Mer de Corail
arrêt de l'avance japonaise
El-Alamein
Avance des Alliés en Afrique du N.
Les Japonais prennent l'Asie du S.E. et Singapour
Capitulation des Allemands à Stalingrad
Les Japonais s'emparent de Hong-Kong et des Philippines
Les Alliés envahissent la Tunisie
Les Alliés envahissent la Sicile, l'Italie
Pearl Harbor
Leningrad est délivrée
Les Allemands atteignent Moscou
Les Allemands sont chassés de Russie
Crète, Afrique du N.
Yougoslavie, Grèce
Les Russes atteignent Budapest
La Hongrie, la Roumanie, la Bulgarie se joignent à Hitler
Capitulation de l'Italie
Contre-attaque allemande dans les Ardennes
Bataille d'Angleterre
Charte de l'Atlantique
France
Hitler envahit la Russie
Jour J
Pays-Bas
Prêt-bail
Prise de Paris, Bruxelles
Les Alliés franchissent le Rhin
Les USA reprennent les Philippines
Drôle de guerre
L'Italie se joint à Hitler
Les Russes atteignent Berlin; capitulation de l'Allemagne
Norvège, Danemark
Pologne
Hiroshima, Nagasaki; capitulation du Japon
Victoires nazies
Principales batailles

-- dans *The 20th Century*

57. Toutes les données du tableau conviendraient **le mieux** à des recherches sur

A. l'expansion fasciste en Europe
B. l'essor et la chute de l'Allemagne nazie
C. l'essor et la chute des puissances de l'Axe
D. les grandes batailles sur terre de la Seconde Guerre mondiale

58. Les événements du tableau couvrent la période

A. 1935 à 1945
B. 1938 à 1942
C. 1939 à 1945
D. 1940 à 1948

59. Selon de nombreux observateurs occidentaux, un facteur essentiel à l'origine de la guerre froide a été

A. la décision soviétique d'envahir la Hongrie
B. la décision soviétique de faire le blocus de Berlin
C. l'installation par les Russes de missiles à Cuba
D. le lancement du satellite Spoutnik par les Russes

60. L'engagement du Canada vis-à-vis des alliances régionales est le mieux illustré par son adhésion

A. au Commonwealth
B. aux Nations unies
C. à l'Organisation du traité de l'Atlantique Nord
D. à l'Accord général sur les tarifs douaniers et le commerce

61. Quelle organisation est rapprochée de la principale force qui a contribué à sa fondation?

A. Les Nations unies -- le supranationalisme
B. La Communauté économique européenne -- l'ultranationalisme
C. L'organisation du traité de l'Atlantique Nord -- l'isolationnisme
D. L'Accord général sur les tarifs douaniers et le commerce -- le militarisme

62. La fréquence croissante de la diplomatie au sommet fournit une preuve nouvelle qu'un facteur crucial dans les relations internationales est

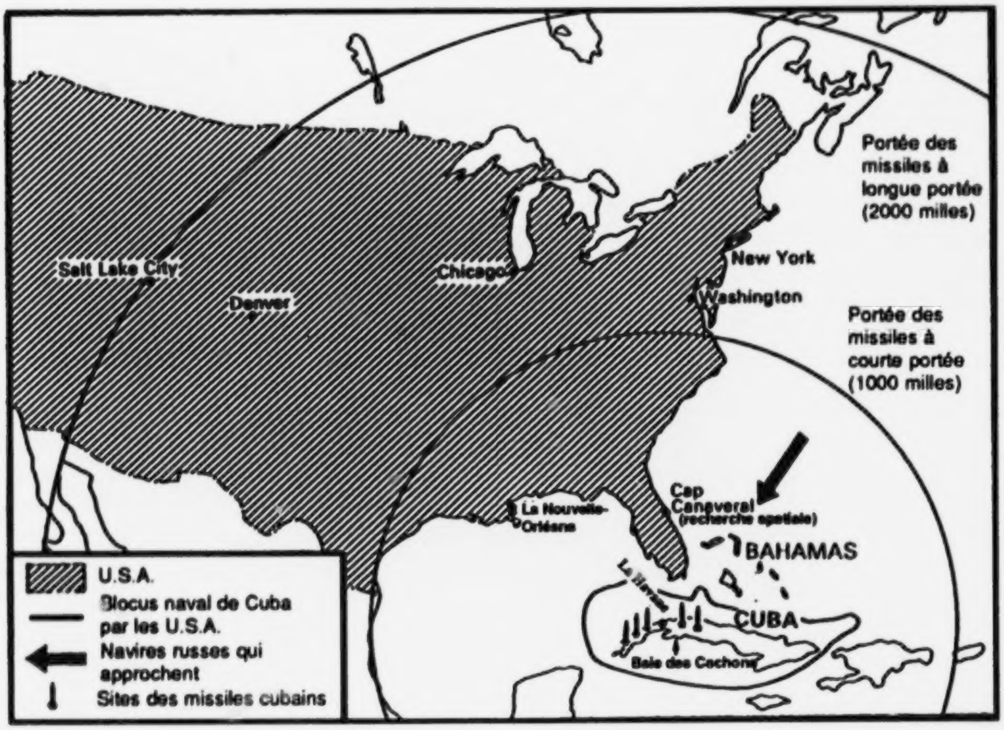
A. les politiques des États non-alignés
B. le fonctionnement des Nations unies
C. l'influence des alliances régionales
D. l'attitude des grandes puissances

63. Par suite des expériences de la Russie dans les guerres napoléoniennes et la Première et la Seconde Guerre mondiales, la démarche de Staline pour créer une sphère d'influence en Europe de l'Est a été surtout motivée par un désir

A. de créer une zone tampon contre une invasion occidentale éventuelle
B. d'établir un tremplin pour une invasion soviétique de l'Ouest
C. de créer une zone d'union économique pour assurer la prospérité soviétique
D. d'établir une domination totalitaire sur des millions de Slaves

**Utilisez les sources suivantes pour répondre aux questions 64 à 67.**

SOURCE I


Portée des missiles à longue portée (2000 milles)
New York
Washington
Portée des missiles à courte portée (1000 milles)
Salt Lake City
Denver
Chicago
Cap Canaveral (recherche spatiale)
La Nouvelle-Orléans
BAHAMAS
La Havane
CUBA
Baie des Cochons
U.S.A.
Blocus naval de Cuba par les U.S.A.
Navires russes qui approchent
Sites des missiles cubains

-- dans *Our World This Century*

SOURCE II

> Cette accumulation secrète, rapide et extraordinaire de missiles communistes dans une région bien connue pour avoir des rapports spéciaux et historiques avec les États-Unis est une transformation délibérément provocatrice du statu quo, que ce pays ne peut pas accepter. Pour arrêter cette accumulation offensive, nous entreprenons une mise en quarantaine rigoureuse de tout équipement militaire offensif en partance pour Cuba.
>
> -- le président américain Kennedy

SOURCE III

> Les fusées américaines sont en Turquie. Vous vous inquiétez de Cuba. Vous dites que cela vous inquiète parce que c'est à 90 milles de la côte américaine. Mais la Turquie est notre voisin.
>
> -- le numéro un soviétique Khrouchtchev

64. Ou peut inférer d'un examen des sources que la crise des missiles de Cuba a été déclenchée surtout par

A. l'apparition de navires soviétiques près de Cap Canaveral pendant des tests de missiles secrets

B. l'invasion soviétique de Cuba, allié historique des États-Unis

C. l'emploi de missiles soviétiques pour écraser l'invasion de la baie des Cochons que soutenaient les Américains

D. la découverte de bases soviétiques à moins de 100 milles des États-Unis

65. Selon la Source III, l'action soviétique à Cuba était une tentative pour

A. rétablir l'équilibre nucléaire
B. se venger des attaques à la roquette sur la Turquie
C. répondre à une demande de protection des Cubains
D. étendre le prestige communiste en Amérique latine

66. L'action décrite par Kennedy, dans la Source II, pour contrecarrer l'action soviétique serait **le plus** activement soutenue par des partisans d'une politique

A. de détente
B. de conciliation
C. d'isolationnisme
D. de la corde raide

67. L'information des sources soutient laquelle des généralisations suivantes sur les relations des superpuissances depuis la fin de la Seconde Guerre mondiale?

A. Les réunions entre les dirigeants américain et soviétique ont diminué en nombre et en importance depuis 1962.

B. Les disputes entre les superpuissances ont parfois été réglées grâce à un arbitrage international.

C. Un conflit militaire direct entre les superpuissances a souvent été évité grâce à l'intervention d'une autre puissance.

D. Les relations entre les dirigeants américain et soviétique ont souvent été mises à rude épreuve par des crises internationales mettant en jeu des puissances moindres.

Utilisez les opinions suivantes pour répondre aux questions 68 à 70.

### INTERLOCUTEUR I

Ce sont les dirigeants politiques au pouvoir qui décideront si l'éventualité d'une guerre nucléaire se transformera en probabilité et de probabilité en réalité. Ce sont eux qui seront tenus responsables du succès ou de l'échec des efforts pour faire reculer Armageddon -- pas les scientifiques ni les commandants militaires, pas les marchands d'armes ni les négociateurs; mais les politiciens.

### INTERLOCUTEUR II

Les chefs des gouvernements sont partout très mêlés aux politiques de guerre; ils ne sont pas très mêlés aux politiques de paix.

### INTERLOCUTEUR III

Il est courant de se plaindre de nos politiciens. Mais les gens pourraient forcer les politiciens à coopérer s'ils le voulaient eux-mêmes sérieusement. Les politiciens expriment les désirs des électeurs. C'est pourquoi c'est au niveau de la prise de conscience qu'il faut avant tout agir si on veut un changement de structure. De grandes propositions peuvent se présenter en réponse aux exigences d'une conscience éveillée.

-- source pour les interlocuteurs I, II et III: *World Press Review*

### INTERLOCUTEUR IV

Les plus grandes menaces pour le monde aujourd'hui sont les chefs au pouvoir qui considèrent la guerre inévitable et préparent ainsi leurs citoyens pour un conflit armé. Si on considère la guerre inévitable, elle devient inévitable. Les attentes déterminent le comportement.

68. Quelle question centrale est soulevée par les interlocuteurs?

A. Les nations devraient-elles recommander la participation aux mouvements internationaux pour la paix?

B. Les chefs de gouvernement devraient-ils être tenus responsables de la politique militaire d'une nation?

C. Les nations devraient-elles suivre une politique de désarmement ou de dissuasion pour affermir leur prestige?

D. Les chefs de gouvernement devraient-ils prendre des pouvoirs dictatoriaux en périodes de conflit militaire?

69. Des remarques faites par les quatre interlocuteurs, on peut conclure que

A. les nations peuvent obtenir la paix par des élections démocratiques

B. la décision de s'armer nationalement est avant tout politique

C. c'est l'escalade de la course aux armements malgré les tentatives pour limiter les armes

D. la guerre nucléaire est considérée inévitable par la plupart des dirigeants politiques

70. Pour un internationaliste, quelle mesure serait estimée la plus appropriée pour résoudre le problème soulevé par les interlocuteurs?

A. Réunir une conférence générale des nations pour considérer les propositions de réduction des armements

B. Enlever aux politiciens la prise des décisions militaires et laisser aux chefs militaires les décisions sur la guerre

C. Encourager les gouvernements engagés à assurer la paix mondiale à former des alliances régionales défensives

D. Augmenter la production d'armes nucléaires et classiques pour que la guerre devienne encore plus impensable

# PARTIE B: RÉDACTION

Dans la partie RÉDACTION, on vous demande de faire une dissertation qui compte pour 30% de la note totale.

## INSTRUCTIONS

Choisissez **UN** des deux sujets qui suivent pour votre dissertation. Si vous traitez les deux sujets, **SEUL** le premier sera noté.

**N'OUBLIEZ PAS D'INDIQUER LE SUJET QUE VOUS AVEZ CHOISI À L'ENDROIT PRÉVU AU DOS DU LIVRET D'EXAMEN.**

**LISEZ ATTENTIVEMENT TOUTES LES PARTIES DE LA QUESTION.**

Votre dissertation doit être faite dans la partie réservée à cet effet. Il y a des pages pour le plan et pour le brouillon, et pour le travail fini.

## SUJET A

## RÉDACTION

## SUJET DE DISSERTATION

Dans certaines nations, un seul parti politique a le droit d'exister et de former le gouvernement. On croit qu'un tel système unifie le mieux les citoyens en vue d'un but commun. Dans d'autres nations, deux partis politiques majeurs rivalisent entre eux pour former le gouvernement. Dans d'autres encore, beaucoup de partis politiques différents, représentant toutes sortes de politiques, rivalisent entre eux pour former le gouvernement.

**LES NATIONS DEVRAIENT-ELLES AVOIR DES RÉGIMES POLITIQUES PLURIPARTITES?**

Dans une dissertation, choisissez et défendez une position sur cette question.

SUGGESTION POUR RÉDIGER:

> Organisez votre dissertation de la manière qui défendra le mieux votre position sur la question. La répartition des points décrite ci-dessous ne vise pas à sous-entendre un plan pour la dissertation.

VOTRE DISSERTATION SERA JUGÉE SUR LA FAÇON DONT VOUS:

| | |
|---|---|
| défendrez une position sur cette question en utilisant des arguments logiques et persuasifs | 10 points |
| identifierez et décrirez de façon réfléchie d'autres positions possibles inhérentes à la question | 5 points |
| choisirez et décrirez, pour défendre votre position, un ou plusieurs exemples ou études de cas pertinents, tirés de vos connaissances dans le programme d'études sociales | 10 points |
| communiquerez efficacement en utilisant la composition et le vocabulaire appropriés ainsi que les règles de la langue | 5 points |
| TOTAL DES POINTS POUR LA DISSERTATION | 30 points |

N'OUBLIEZ PAS D'INDIQUER
VOTRE CHOIX AU DOS DU LIVRET

## SUJET B

## RÉDACTION

## SUJET DE DISSERTATION

Certains gouvernements ont essayé de prévenir l'agression en entrant dans diverses alliances formées pour réaliser un équilibre des forces. Ils croient que dans un régime d'équilibre des forces, aucune nation, aucun groupe de nations ne se sentira assez fort pour menacer l'autre. D'autres gouvernements croient qu'un régime d'équilibre des forces est dangereux et qu'il faut établir un autre régime pour prévenir les conflits entre États.

**UN RÉGIME D'ÉQUILIBRE DES FORCES EMPÊCHE-T-IL L'AGRESSION ENTRE ÉTATS?**

Dans une dissertation, choisissez et défendez une position sur cette question.

SUGGESTION POUR RÉDIGER:

> Organisez votre dissertation de la manière qui défendra le mieux votre position sur la question. La répartition des points décrite ci-dessous ne vise pas à sous-entendre un plan pour la dissertation.

VOTRE DISSERTATION SERA JUGÉE SUR LA FAÇON DONT VOUS:

| | |
|---|---|
| défendrez une position sur cette question en utilisant des arguments logiques et persuasifs | 10 points |
| identifierez et décrirez de façon réfléchie d'autres positions possibles inhérentes à la question | 5 points |
| choisirez et décrirez, pour défendre votre position, un ou plusieurs exemples ou études de cas pertinents, tirés de vos connaissances dans le programme d'études sociales | 10 points |
| communiquerez efficacement en utilisant la composition et le vocabulaire appropriés ainsi que les règles de la langue | 5 points |
| TOTAL DES POINTS POUR LA DISSERTATION | 30 points |

N'OUBLIEZ PAS D'INDIQUER
VOTRE CHOIX AU DOS DU LIVRET

BROUILLON

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**INDICATE YOUR CHOICE OF TOPIC**

**CHECK ONE**

**TOPIC A** ☐

**TOPIC B** ☐

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| M1 | M2 | M3 |
|---|---|---|
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